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# MEDICAL PRACTICE IN AFRICA AND THE EAST

# MEDICAL PRACTICE IN AFRICA & THE EAST

BEING A SERIES OF OPEN LETTERS ON PROFESSIONAL SUBJECTS FROM DOCTORS PRACTISING ABROAD, ADDRESSED TO THEIR COLLEAGUES AT HOME

EDITED BY

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WITH AN INTRODUCTION BY

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# EDITORIAL PREFACE

IN the summer of 1921 a group of medical students at Oxford endeavoured to present to their fellow-students a true conception of Medical Missionary work. They collected from several medical men and women on the mission-field letters written primarily to members of their own profession, describing in some detail the actual work they were doing.

They asked the Student Christian Movement to publish the collection they had made. The idea seemed so excellent that it was decided to attempt a fresh collection of letters to cover the whole field of Medical Missionary work.

This book is the result of that attempt. Obviously incomplete, it may perhaps give some conception of how Christ is working, and calling others to work with Him, through the medical profession, in Africa and the East as well as in this country.

We are grateful to those missionaries who have contributed letters to the book, and also to Mr. Stephen Paget for his kindness in writing an Introduction.

HUGH MARTIN.
HUGH H. WEIR.

# INTRODUCTION

DR. WEIR has given me the enjoyment of reading these letters. Our friendship began long ago, when he was my house-surgeon. But he did not depend on that appointment for his skill in practice. Later, when he and Mrs. Weir, in Korea, were at St. Luke's Hospital, and made it a blessing to that remote country, I used to hear from him, and to admire their good work. This was the first that I ever knew about Medical Missions: but I have learned more about them from these letters.

Here it comes into my head to say that this book ought to be read far and wide, not only by doctors and students, but by non-medical folk and anti-medical folk. It has been published under a title which rather conceals than displays the universal interest of the letters. They are full of pictures of life and death in vast stretches of humanity. They tell us of the conditions, habits, exigencies, and diseases obtaining through countries which are always in our talk. They are addressed to the medical profession, but I venture to say that the officers of the Student Christian Movement, by whom the book is published, might well have devised for it a title more attractive to the general reader.

We all want to get our thoughts more clear and orderly about India, Africa, and China. For that purpose we need some sort of insight into the mind of their inhabitants, and some sort of measure of the influences which are exchanged between native lives

and European lives. This is just what these letters bring to us. They are new to us all : the whole thing is new. Medical Missions have discovered a new way of sympathy and fellowship with those peoples to whom they minister, and have laid hold of a secret which is essential to the complete success of missionary work.

It is plain that a Medical Mission, starting to do its best for some neglected and helpless district, has to manage without those resources of practice which belong to great hospitals. But this "pioneering," this "outpost" advance, offers abundant experiences and adventures. Only, wherever it may be, there is no demand for timid or half-trained practitioners. The letters are very emphatic that the right kind of men and women, and they alone, are needed for Medical Missions. "There is plenty of room for mediocre doctors in the home countries—let them stay there." I feel the force of the decision. But, with things as they are in this country, I fear that many of the students who now are at the London School of Medicine for Women will hardly attain a great practice. They may come to be "mediocre," not through any fault in themselves, but by the narrowness of circumstances. Meanwhile, in less crowded and less elaborate countries, innumerable patients are waiting for them. Dr. Florence Campbell explains all this in her admirable letter. It is true that she writes only of India. Still, it is certain that medical women can be sure of any amount of practice in Africa or in China.

None of us can doubt that these letters are justified in their promise of wide and multifarious practice, and of steady acquaintance with the art of rendering service to humanity. It goes without saying that they who devote themselves to Medical Missions are good Christians. That is part of their set work, to bear

witness, by precept and example, to all that is vital to Christianity. It seems to me, from these letters, that there is no room in a Medical Mission for the difficulties and shades of disbelief which occupy us at home here. The line is more definite over there, between that which is Christian and that which is non-Christian. Indeed, the contrast between the Mission and its surroundings may become downright absurd, as in the episode described by Dr. Kirk :

> My first obstetrical case was a boat-woman in difficulties with a transverse presentation. In the bottom of a cargo-boat under an awning lay my patient in travail. A paper charm had been tied round the wrist of a prolapsed arm, from which native midwives had already removed most of the skin in their attempts at *accouchement forcé*. A Taoist priest was sitting on the river bank alongside, setting off fire-crackers and beating a little brass gong in his endeavours to drive off the evil influences responsible for the dystocia. The removal of the case to hospital, and a happy termination for the mother, gave us another lift forward towards our objective.

Christianity, thus up against magic, is not concerned with perplexities of belief, nor with the exact adjustment of personal religion. Something has got to be done at once : it is done by a Christian doctor ; and when you contrast him with the rival practitioner on the bank, fireworks and gong and everything, you are not minded to criticise the spirit and the record of the Christian life and work.

But, of course, it all involves the will to accept grave obligations. These must be taken into account and thought out. Nothing should be decided in a hurry

of good intentions. There are the years away from home ; there is the prospect of deprivations and hardships, and the risk of failure of health ; and there is the imperative duty of "learning the language." It is possible that the letters do not say enough about these obligations.

Still, the fact remains that they are part and parcel of all missionary enterprise, whether it be or be not medical. Against them, grave though they are, there is the hope, almost the assurance, of the happiness and success of plenty of medical and surgical work, and the novelty of life in strange parts of the world. Besides, the rewards of practice—the hospital appointments, the opportunities for original work, the regular teaching of native students and midwives, the privilege of authority—these come in due time, after the initial years of probation.

It is right that lives so strenuous and so hazardous should have the chance of the professional rewards which we over here covet and strive to win. But that is not the meaning of this wonderful set of letters. Medical Missions look for another sort of rewards—and are not disappointed of them. All their work is in the name of Christ, for the extension of His kingdom. I am not the man to write of these things ; but I cannot imagine a better vocation than this, which is two vocations in one.

STEPHEN PAGET.

LIMPSFIELD,
SURREY.

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# MEDICAL PRACTICE IN AFRICA AND THE EAST

## SURGERY

BY

HENRY T. HOLLAND, M.B., Ch.B. Ed., F.R.C.S. Ed.,
Kaiser-i-Hind, Second Class.

Medical Missionary i/c C.M.S. Hospital, Quetta, 1900–1916.
Civil Surgeon, Hyderabad, Sindh, 1916-1918.
Residency Surgeon and Chief M.O., Baluchistan, 1918–1919.
Medical Missionary i/c C.M.S. Hospital, Kashmir, since 1919.

If I were asked point blank, "What form of Missionary work is most effectual as a pioneer agency?" I would unhesitatingly reply, "Medical Missionary work"; and if the question were still further narrowed down, "What department of Medical Mission work is most effective?" I would again without the slightest hesitation reply, "Surgery."

For there can be no doubt that among savage and uncivilized races surgery makes a far deeper impression than medicine. It is also more effective from the spectacular point of view. The simplest operations in surgery appear to them nothing short of miraculous. A man comes up to the Mission Hospital with, let us say, a big stone in his bladder. To the amazement of the patient's friends this stone is extracted within five minutes by suprapubic or perineal lithotomy, or, perhaps to them still more marvellous, it is withdrawn through a catheter in the form of fine gravel or sand.

Or take the case of a woman arriving with a gigantic ovarian tumour : within forty minutes, or even less, this tumour is removed as the patient's friends look on. Lastly, an old man enters the out-patient room, tottering along and led by the hand, blind in both eyes, due to cataract, and within five minutes of going on to the table sight is restored to both eyes.

Examples could be enumerated without number to prove the extraordinary efficacy of Medical Missions, and especially surgery, as a pioneer agency. And it is with regard to surgery that the uncivilized races are so far behind us, and it is here that the East has still so much to learn from the West. Before the advent of the white man surgery was of the most rudimentary order among the Eastern and African races.

In India the barber was the surgeon, and is still in the outlying districts. Surgery in India was practically confined to opening abscesses, extracting teeth, venesection, the use of the cautery, and couching the lens for cataract. As regards the latter operation as performed by the Indian hakim, the method of operating has only to be mentioned to indicate the appalling results that follow in about 95 per cent. of cases. A sharp hook, with no aseptic or antiseptic precautions, is driven into the lens through the cornea, and the lens then dislocated downwards into the vitreous. In spite of only some 5 per cent. of cures, the Indian cataract coucher still earns a very fair income. One is continually brought face to face with the horrors of Indian surgery and the lives thus thrown away. I think of the hundreds of septic eyes I have seen caused by the Indian cataract coucher ; the tubercular joints opened by the filthy barber's knife exuding foul-smelling pus ; and other instances of surgical malpractice too numerous to detail. I might allude to one enterprising

oculist, who claimed to be a disciple of mine, and promised cure for all leucomas and corneal opacities by excising the portion of cornea involved! I put the District Magistrate on his track; but, unfortunately, he escaped to ply his trade in other parts.

Apart from the evangelistic side of the Medical Missionary enterprise, the call of humanity ought to bring out many more of our best surgeons to Africa and the East, to aid in saving those lives which, year by year, are being lost owing to the malpractices of the hakim and surgical quack. The opportunities for surgery are almost limitless, and in India surgery is still to a preponderating extent in the hands of the Western, though there is rapidly growing up, thanks to Western education, a generation of able and expert surgeons, and at the present time the biggest eye operator in India is an Indian, Dr. Matra Dass, of Moga.

One of the great difficulties with which the surgeon in India and the East generally has to contend is the lack of qualified practitioners to send in the cases for operation. Hardly a day passes in any of our large out-patient cliniques but one sees cases too far gone for the surgeon to tackle. "Too late! too late!" is the reply we so often have to give to patients coming to our hospital. And that is one of the tragedies of our surgical work. In most cases there are no doctors in the small villages and towns to send a case of cancer in the early stages to the surgeon; and in others, where there are qualified private practitioners, there is too often the tendency for them to use palliative measures, and when these fail, send the case to the surgeon when it is beyond the power of the knife to cure.

Another great drawback is the difficulty of bringing the patient to the hospital in time, owing to the huge

distances to be travelled and the defective system of transport. On the Frontier of India we sometimes have patients arriving who have been three weeks on the way, and arrive only to be told, "It is too late; nothing can be done."

The crying need of India, Africa, and the East now is a sufficient supply of qualified practitioners, scattered through every small town and district, who are competent to diagnose and send cases to the surgeon before it is too late to operate. In India the medical education is undertaken chiefly by the Government, but in China and Africa the brunt of this work falls on the Mission Colleges and Universities, and for these Colleges and Medical Schools the best surgical specialists are required.

I have often been asked at home if specialists are needed in our Medical Missions. There is a distinct and urgent need for specialists at our Medical Schools in China and in Africa, where, as yet, with the exception of the magnificent Hospital and Medical Schools in Uganda and Cairo, Medical Missions are still in their infancy. But one looks forward to the time when West Africa, Nigeria, and the Soudan will all have their Medical Mission Schools, for which specialists of all kinds will be required. As a general rule the medical missionary has to be qualified in all branches of medical and surgical science, and it is therefore impossible for him to specialize in any one special branch of surgery or medicine to the exclusion of the others.

When one contrasts the scope for surgery at home and abroad there is practically no comparison. Major surgery at home is confined to the favoured few, whereas abroad the young medical missionary may be called on within a month of landing in the country to perform an ovariotomy or remove an intralaryngeal

tumour. The scope in the mission field is so great that one certainly marvels that more do not come out from Britain to work in the wellnigh limitless field of surgery the mission field offers. Eye diseases, for example, are far more common in the East than in Western countries, and any young surgeon who is anxious to obtain really good experience in eye diseases before settling down at home as an eye specialist could not do better than spend a cold weather in India, visiting the well-known eye cliniques there.

I will now proceed to illustrate the vastness of the field of surgery by referring in some detail to work in connection with the Quetta Medical Mission at Shikarpur, Sindh, India. It also drives home the value of Medical Missions as a pioneer agency. Shikarpur, a city of some 75,000 inhabitants, was noted for its bigotry and religious intolerance, and had closed its doors to all forms of missionary enterprise. Here, where other efforts had signally failed, an opening for missionary work was made by the point of a cataract knife, as the late Dr. A. Neve once so well expressed it. For it was owing to the eye work in connection with the Quetta Medical Mission that the writer was invited to Shikarpur some eleven years ago to operate on some cataract cases. Space forbids my describing how rapidly that work has grown, so, without any further description of the development of the work there, I will at once tell you of our last visit to Shikarpur, in January and February, 1921, to demonstrate the wealth of clinical material available to the surgeon.

As regards the clinical material, we have had as many as 760 patients passing through the out-patient department in a single day, and that out-patient department is open six days a week. In some weeks

we must have seen over 2,500 new cases, of whom the greater number are surgical! I must explain that this clinique at Shikarpur only lasts from six weeks to two months each year, and as we visit Shikarpur the same time each year, patients collect even before our arrival on January 1.

The critic may say, "How is it possible to see satisfactorily 700 out-patients a day? The quality of the work of any one hospital is of far greater importance than the quantity." All this I freely admit; but what can the doctor do when his hospital is thronged by hundreds of patients from morning to night? And as our Shikarpur hospital is chiefly for surgery, and more especially eye-surgery, we endeavour to discourage medical cases as far as possible, and explain to them we have no time to treat such cases; but, as some come from long distances, it may be many hundreds of miles, no one is sent away without a prescription or some medicine, usually in the form of pills. There is only one doctor on duty with the out-patients, and it is extraordinary after some practice how he can work through 500, 600, or even 700 out-patients in a day, and pick out those for whom surgical aid can be given.

This year, owing to a very small staff, we had to curtail our visit, and only operated for twenty-nine days, but in that time we performed over 2,600 major and minor operations, averaging nearly ninety operations a day. The largest number of operations on any one day was 186, including 112 for extraction of cataract; which I imagine must be very nearly a record. As I have already said, our surgical work is principally ophthalmic, which accounts for the fact that out of the 2,600 operations, 2,412 were for diseases of the eye, only 185 operations other than eye being performed. That number could have been doubled or even trebled,

but as our time was limited, as well as our staff, we declined to undertake any operations which would take more than half an hour to perform, and also turned away all septic cases. Of the 185 general operations performed, 35 were for vesical calculus, and some 30 or 40 for hæmorrhoids.

I will now tabulate our list of eye operations performed in these twenty-nine days, as it may be of considerable interest to my medical and surgical readers.

| | |
|---|---|
| Extraction of cataract ... ... | 1,203 |
| Iridectomy— | |
| 1. For staphyloma ... ... | 1 |
| 2. ,, occlusion of pupil ... | 6 |
| 3. ,, leucoma ... ... | 212 |
| 4. ,, glaucoma ... ... | 28 |
| 5. Prelimy. for glaucs. cataract | 28 |
| 6. For antr. polar cataract ... | 2 |
| Herbert's operation for glaucoma ... | 1 |
| Trephining for glaucoma ... ... | 2 |
| Extraction of capsule after needling ... | 2 |
| Subconjunctival injections of saline— | |
| 1. For pannus ... ... ... | 193 |
| 2. ,, trachoma ... ... | 59 |
| 3. ,, recent corneal opacity and corneal ulcers ... ... | 52 |
| Peritomy for pannus ... ... ... | 30 |
| Scraping for trachoma ... ... | 87 |
| Pterygium ablation and transplantation | 117 |
| Prolapsed iris, excised ... ... | 13 |
| ,, vitreous, excised ... ... | 5 |
| Symblepharon plastic ... ... | 1 |
| Cautery for corneal ulcer ... ... | 9 |
| Eversion of corneal flap after cataract extraction flap replaced ... ... | 2 |

| | |
|---|---|
| Entropion and trichiasis ... ... | 296 |
| Ectropion, cicatricial ... ... | 1 |
| Staphyloma : abscission ... ... | 16 |
| Evisceration ... ... ... ... | 25 |
| Excision of lachrymal sac ... ... | 6 |
| Probing of lachrymal obstruction ... | 23 |
| Unclassified ... ... ... ... | 16 |
| Total | 2,412[1] |

The above figures illustrate the great opportunities for surgery in India. Even the most avaricious surgeon could hardly ask for more than ninety operations a day, and these were usually shared by two men, one being on duty in the out-patient department.

We have an experience of about 8,000 operations for cataract in connection with the Quetta and Shikarpur work. In the North of India most ophthalmic surgeons perform the operation for cataract by the intracapsular method, while those in Bombay and Madras hospitals associated with the well-known names of Colonel Herbert, Colonel Kilkelly, and Colonel Elliot, all of the I.M.S., still usually perform capsulotomy.

Glaucoma is another eye disease rife throughout India, and it is impossible to calculate the hundreds of thousands of cases of blindness due to this dread disease. It was at one time hoped that Elliot's operation of trephining would prove a panacea for glaucoma, but unfortunately such is not the case, for not only does it fail to cure in many cases, but, sad to say, many cases of late infection have occurred after this operation, and many believe that the older operation of a wide

[1] This total does not exactly correspond with the figures given, but since the author could not be consulted, it seemed best not to "cook" them.—EDITOR.

iridectomy is as efficient. Colonel Herbert has recently introduced a newer operation, which I have found very successful in a few cases. Each year we see at Shikarpur over 1,000 cases of glaucoma, most of which come too late for operation.

I have already referred in passing to vesical calculus, and for those who demand experience in this particular branch of surgery a happy hunting-ground can be found in India, specially along the Indus Valley. At Shikarpur we have done as many as six or seven operations for stone in the day, but at Hyderabad, Sindh, the biggest stone hospital in the world, where I was stationed for two years as Civil Surgeon during the War, some 600 to 700 operations for stone are performed annually, and I remember one day when sixteen litholapaxies were performed. In India, "crushing" is the rule and a lithotomy the exception, whereas in England the lithotrite is but seldom used and lithotomy is the rule.

There is also in India a very wide field for bone surgery of all kinds. The Frontier, with its constant raids, affords an almost constant supply of bullet injuries of bones of all kinds, while osteomyelitis in some parts of India is very prevalent. At the Kashmir Mission Hospital in the last two years, out of a total of 1,822 major operations, 361—rather more than one-sixth—were for bone diseases. In connection with Kashmir I must mention one form of epithelioma peculiar to that country. It is found chiefly on the abdomen and inner sides of the thighs, and is caused by irritation due to a charcoal fire-basket which the Kashmiri of both sexes carry under their shirts all through the winter. From 90 to 100 operations per annum are performed in the Mission Hospital for this dire disease, akin to chimney sweep's and paraffin

cancer occasionally found in England. Yet another peculiarity of Kashmir is the extreme prevalence of osteomalacia. There must be many hundreds of women suffering from this complaint, and before the advent of the Western doctor, scores died each year in childbirth. Now, fortunately, by the aid of Cæsarean section many lives of both mothers and infants are saved. In the past year Cæsarean section has been performed on over thirty occasions in the city of Srinagar.

As regards abdominal surgery, there is an ever-increasing scope for this branch, especially in the big towns, and where the population is more highly civilized, though on some parts of the Frontier people still expect that a laparotomy is almost certain to be followed by death. But at one of the finest Mission Hospitals in India—that at Miraj, near Bombay, associated with the name of Dr. Wanless—hundreds of gastroenterostomies and laparotomies have been performed ; but the young surgeon will be struck on arriving in the East with the comparative rarity of appendicitis and gall-stones compared with England and America.

Then, again, regarding the comparatively few operations for "acute abdomen," one is at first puzzled why there should be so few, even in our large hospitals. The main reason is not far to find, and it is this, that owing to the great distances patients have to travel, and bad transport, most of the acute abdominal cases die before they reach hospital. Many a perforated ulcer and many a strangulated hernia die because, in the first place, there is no competent doctor to diagnose the condition, and, secondly, because the patient is thirty-six hours or, it may be, three or four days' journey from the nearest hospital. In parts of

Africa and China it may be a case of a three or four weeks' journey to the nearest hospital. This state of things will some day be remedied, when each big centre of population has its own well-equipped hospital, and each town has its qualified practitioners. Government cannot at present produce those hospitals and those men, and it is up to the leaders of Medical Missionary enterprise to supply that need and fill up those gaps.

I might also allude to the scope for orthopædic surgery, ear, nose and throat surgery, and other special branches; but I must bring this long and somewhat rambling article to a close by summing up the chief points on which I would like to lay special emphasis.

1. Surgery as a pioneer agency in Medical Missionary enterprise. There are still vast fields untouched and awaiting the surgical pioneer, especially in Africa, Afghanistan, Tibet, and parts of inland China. In these regions there is virgin soil, where Western surgery is hardly known.

2. There is ample scope for the surgical specialist at the large Medical Schools and Colleges in the East, especially in China, and ere long we hope in many parts of Africa as well, where he will have the opportunity of educating and inspiring the surgeons of the future in these Eastern lands.

3. The wealth of clinical material available and awaiting the Western surgeon. Words fail to convey the immensity of the field open to Western surgery.

4. The miserably inadequate supply of men to meet the surgical needs of Africa and the East. Were the surgeons and the money to support them forthcoming, hundreds of them could find work in China, Africa, and India, and bring into being a generation of competent, efficient, and skilled indigenous surgeons.

If any of my readers are in search of a life-work, a career in which they can serve both Christ and humanity, let them come out to the East, and be co-operators with us in those great fields still open to Medical Missionary enterprise. "The harvest truly is great, but the labourers are few."

# MEDICINE

BY

G. DUNCAN WHYTE, M.D. Ed. (Gold Medal), Dipl. Trop. Med. and Hyg. Cantab., Dipl. Med. Radiology and Electrology Cantab.

Physician, English Presbyterian Mission Hospital, Swatow, China, since 1903.
Examiner in Medicine at Hongkong University.

We medical missionaries in China often feel that our lot is much more interesting than that of our former fellow-students who are now in practice in England. We believe that if more of them realized how thrilling and how satisfying our work is, there would be no difficulty in getting doctors to supply the present urgent demands. In the following paragraphs I shall endeavour to indicate some of the interesting features of the work of the physician.

## I.—The Contact with Chinese Medicine

It seems to us ridiculous to suppose that, "if eggs are used in a house where there is a case of measles, the patient will certainly develop ophthalmia," or that "chicken soup will only be of benefit to a patient if it is made from a fowl of the particular colour specified by the doctor." And the dangerous way in which chemists are allowed to sell arsenic, strychnine, and Japanese star anise in unlimited amount across the counter often leads to disastrous results. I have attended two children poisoned by opium contained in "stop-diarrhœa-pills"; and my colleague, Dr. Lyall,

was once very urgently called to see a woman suffering from all the symptoms of morphine poisoning, who had swallowed some anti-opium pills made by her husband, and "guaranteed free from all opium alkaloids."

While, however, there is much that is ludicrous and a great deal that is dangerous in Chinese medicine, yet many of the fundamental ideas that actuate the native doctor are very sound, and some of his drugs are most useful.

It is interesting and not a little humiliating to find that the Chinese have for centuries been using some of our so-called "modern" methods of treatment. The salt-free diet which relieves some œdematous patients was used by the Chinese for such cases many generations ago, and it is barely twenty years since its use was discovered in Europe.

In the treatment of leprosy many Western doctors were in the habit of using the oil expressed from Chaulmoogra seeds, whereas the Chinese physician believed that the most effective therapeutic agent was not the oil, but the seeds from which the oil had been expressed. This Chinese view is in accord with Leonard Rogers' recent experiments.

Similarly, the treatment of tuberculosis by urea was practised by Chinese doctors long before its use was advocated in England. They used the purest solution that they could obtain—*i.e.*, the urine of a child. As a matter of fact, Chinese seem to respond particularly well to this line of treatment, due, no doubt, to the very small amount of protein in their ordinary diet.

They also know the value of wet cupping, dry cupping, and other forms of counter-irritation, and they have efficient diuretics, as well as other valuable drugs which we have not yet begun to understand; and cold baths are occasionally given for hyperpyrexia. Even

in the domain of surgery they have anticipated some Western discoveries, the principles of passive congestion having been applied by them for the relief of septic infections long before Bier's great-grandfather was born !

Though appendicitis is almost an unknown disease, I have just seen a second case in which all general symptoms of acute inflammation and peritonitis subsided at once under native remedies (local and internal) ; only a little *thickening* remaining in the region of the appendix.

Finally, a point from obstetrics : many native midwives affirm that if in a "transverse" case a little salt is put into the presenting hand, it will be at once withdrawn, and the labour will spontaneously progress to a satisfactory conclusion !

## II.—Physiological Standards

A study of the physiological processes of Chinese reveals interesting differences between them and Europeans.

Using the standard methods of gastric analysis, one hour after a test breakfast, one finds in the Chinese that the hydrochloric acid, the total acidity and the motility are all diminished. On the other hand, the motility of the rest of the alimentary canal seems to be increased, for with many defæcation occurs twice daily, and, save in sickness or starvation or amongst opium smokers, constipation is very rarely met with.

In the urinary system differences are also met with, the urine is usually more copious and always of lower specific gravity, while both the concentration and the total excretion of urea are much less than in normal Europeans.

The total number of hæmocytes and leucocytes may be about normal, but the differential leucocyte count often differs considerably from European standards, a high eosinophile count being usual, and suggesting parasitic infection, which is met with in 95 per cent. of the people.

As regards the nervous system, fifteen hundred tests made on Chinese patients to determine the acuteness of the sense of vibration showed that at every bony point tested the average Chinaman was *less sensitive* than the average Englishman. As a matter of fact, the extraordinarily plucky way in which they bear pain makes one quite prepared to believe that they *are* less sensitive than we are.

This obviously only touches the fringe of the subject, but it serves to indicate that there is a vast field for research work along these lines. It is only by the scientific investigation of every physiological process that we will be able to obtain normal standards for China.

## III.—The Habits of the Chinese

In every Chinese city there is an unlimited field for the activities of those who are interested in public health and hygiene, but in most cases one must content oneself with carrying on a campaign of enlightenment "to move the masses to a cleaner style."

In any room in which guests are received there will always be two or three pipes for tobacco and four or five small teacups. These will be repeatedly replenished and passed from mouth to mouth till the host, the guests, and all the guests' retinue are adequately refreshed. It is thus easy to understand the spread of tuberculosis and the occasional recurrence of primary syphilitic sores on the lips.

Perhaps the most revolting sight one meets with is the dirty cloth that hangs by a string near the door of some eating-houses for the patrons to wipe their lips on as they leave the shop at the conclusion of their meal!

It takes some time to impress upon a new Chinese servant the "barbarian's" predilection for an individual toothbrush and serviette.

The Chinese do not practise isolation in their treatment of the infectious diseases of childhood—chicken-pox, mumps, measles, smallpox—so that these spread quickly to all the children in a village as soon as one case has been imported. In many villages, on account of superstitious ideas, vaccination of infants is only allowed to take place every three, four, or five years; consequently, when an epidemic of smallpox visits such a village, all the children under three or four may be unprotected, and as revaccination is rarely practised the total mortality is often heartrending.

Everyone knows that the Chinese fertilize their fields with human excrement, often quite fresh, and rarely stale enough for the pathogenic organisms to have been destroyed. As many of their vegetables are eaten without being cooked, dysentery, typhoid, and every form of intestinal parasite are of very common occurrence. One presumes that it is their past experience of water-borne disease that has led them to adopt tea rather than water as the national beverage.

## IV.—Incidence of Disease

Why do we so rarely see acute rheumatism, scarlet fever, and (except with influenza or plague) lobar pneumonia? Why does not waxy disease of the kidney manifest itself in cases of old-standing osteo-

myelitis or hip-joint diseases? The absence of appendicitis is presumably due to the absence of constipation, but why—in the abundant presence of syphilis and heavy manual labour—do we see so few aneurisms? Granted that those of the arch of the aorta may be missed, there should be no difficulty in diagnosing external aneurisms. Yet how very few one sees! Not a dozen in fifteen years' hospital work in China. One meets with many varieties of syphilitic affections of the nervous system, but very rarely with typical locomotor ataxia (*i.e.*, Romberg, Argyll Robertson's pupil, and Westphal's symptom).

These and similar questions confront every worker in South China, and their investigation might throw much needed light on the causation of these diseases, but one's time is much more taken up with the study of the diseases that *are* commonly met with, some of which have for years wrought havoc with the population.

One can imagine few more satisfactory jobs than the treatment of a cholera epidemic, when, having been called to a patient *in extremis,* cold, shrunken, cyanosed, and pulseless, one is able, in nine cases out of ten, by administering intravenously the right amount of the right kind of saline, to restore the man to his wonted health and vigour.

Or, again, take a patient with ankylostomiasis who has felt life a burden for years, but, after a few treatments with thymol, beta-naphthol, or oil of chenopodium, followed by iron, rejoices to find himself a new man. It was the very obvious improvement in our first hookworm patient from a neighbouring village that has led thousands of patients from his own and neighbouring villages to throng our hospital for hookworm treatment during recent years.

It is worth while making long and uncomfortable journeys to inoculate the people of a village against plague—if that disease is threatening them—when one knows that, after the negative phase has passed, they will have a very high degree of immunity. Over 5,000 inoculations of Haffkine's vaccine were given in one year. It is equally gratifying to find that some Chinese have had their dread of this "mortal sickness" lessened by the recovery of their friends after hypodermic injections of adrenalin chloride or Yersin's serum.

We have recently had epidemics of cerebro-spinal meningitis, and several cases of encephalitis lethargica, while typhoid has become endemic rather than epidemic. There are few more interesting problems than those of the prevention, diagnosis, and treatment of this disease, and its differentiation from paratyphoid A and paratyphoid B, both of which are also met with in Swatow. There is not space to go into this question or into any of the many other interesting diseases met with; but every out-patient day brings amongst its hundreds of simple cases many patients suffering from obscure diseases that will repay the fullest investigation.

## V.—Chinese Co-operation

One's joy in the work is greatly increased by the appreciation shown by many Chinese of the efforts made on their behalf and by the generosity of their voluntary gifts to the hospital, which have often been presented in spite of the fact that the results of the treatment were not such as one had hoped for.

Another great source of satisfaction in one's work is the wonderful teachableness and dexterity of one's

Chinese assistants, both educated and illiterate. The examination of sputum for tubercle bacilli, the testing of fæces for occult blood, the determination of the ratio between urea nitrogen and ammonia nitrogen in urine, are all done by Chinese, who also take a lively interest in detecting and timing heart murmurs, in discovering the amount of the excursion of base of the lung in deep breathing, and in clinical investigation of every kind.

As this is a medical paper for medical men, I have not touched on the spiritual side of the work at all. Although the Chinese have the greater share in this work—as they naturally can get closer to their fellow-countrymen than any foreigner can—yet the supreme joy of the doctor's life is to see the seed fall upon good ground and bring forth fruit, "some an hundredfold."

# A FEW NOTES ON DISEASES OF WOMEN AND OF MIDWIFERY,

## AS PRACTISED IN SOUTH INDIA

BY

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In India, it is considered a great disgrace for a woman to be childless. Consequently, a good many sterile women come to consult us, after they have visited many shrines and temples and spent much money in offerings to the gods. A very common cause of sterility is a conical cervix, with a pinhole os and some endometritis. I found that dilatation with curettage cured about 60 to 70 per cent. of such cases. Quite a number of sterile women suffered from irregular menstruation, and often became fat and lethargic. Many of these were much improved after a course of thyroid treatment.

Much good can be done in India to lessen the infant mortality at childbirth by antenatal work. In a country where it is such a disgrace not to have a child, it is a terrible fate for a woman to lose her child at birth. If she loses child after child, it often results in most unhappy consequences to the woman. The husband often takes another wife, and the unfortunate woman is in such despair that she sometimes commits suicide by throwing herself into a well.

A great deal of this infant mortality is preventable.

I felt it to be one of the most satisfactory parts of my work to care for pregnant women for some time before childbirth. In India syphilis is very common, consequently one had to give anti-syphilitic treatment to many women during pregnancy, and to continue this to the child after birth. Unfortunately, the women often came too late for the treatment to be effective, and in that case all I could do was to persuade the patient to continue the treatment, with the hope that in a future pregnancy she would be more fortunate.

The native conditions of childbirth are appalling. The woman is usually put into the smallest and worst ventilated room in the house, and is not allowed into the house proper till she has had her bath. This often leads to the bath being taken too soon, with bad results to the patient.

There is much puerperal fever in India, chiefly due to the absence of even ordinary cleanliness on the part of the native untrained midwife. Consequently, childbed mortality is very high. A patient of mine who died of acute septicæmia had been attended by an Indian midwife who at the same time had been dressing a gangrenous leg. It was sad for us to see patients in labour, who had been carried in cots from villages twenty or thirty miles off, die at our hospital gate, as they had been left uncared for too long.

There is great need for the training of village women as midwives. Midwives trained in Government hospitals are not available for the villages, as they are attached to up-country Government dispensaries, and cannot do more than attend cases in the town where they live.

For some years Dr. Agnes Henderson, of the U.F. Mission at Nagpur, has been doing a very important work. She started a training class for the ordinary

untrained village midwives. The women come from the villages, receive instruction, and attend confinement cases under Dr. Henderson's supervision. When they have completed their course of instruction, they return to their villages to practise what they have learned. Although these women are uneducated, they have learned the importance of cleanliness in their work and to know when a case is beyond their skill. An endeavour is being made to start such training work in other parts of India.

In our midwifery practice, we meet with most extraordinary conditions due to neglect. A girl of fourteen who had been in labour for several days with the head in the perinæum for an indefinite time, was brought to me. I found the bladder enormously distended. She ultimately developed a vesico-vaginal fistula and the whole floor of the bladder sloughed away. In spite of this and a long-continued very high temperature, the girl recovered. There was great contraction of the vagina, and the patient had partial control of her urine. In another similar case, where the child's head had been in the pelvis for at least a day, the child lived, but suffered from sloughing of the skin of the head at the points where it had been pressed against the pubic bone and the promontory of the sacrum. The sloughs separated about the tenth day.

Transverse cases are frequently brought to us with the shoulder impacted and the prolapsed arm torn off, the one idea of the village midwife being to pull on any presenting part.

Eclampsia is common, and from my experience more common in the hotter parts of South India. The patient is brought when she is deeply comatose and after she has had numberless fits. Quite a fair proportion of these women recover after treatment.

In my practice in South India I saw very few cases of small or deformed pelvis. I attribute this mostly to the absence of rickets. Practically all the children up to one year old or more are suckled by their mothers. Although osteomalacia is common in North India, it is not in South India. I only saw two or three cases during twenty-seven years' practice. If a mother dies during the last months of pregnancy whilst the child is viable, the relations always have the child removed, as it is a common superstition that the crops will fail if an unborn child is buried along with its mother.

Criminal abortion is frequently practised in the villages (often with fatal results) if widows become pregnant. We have had to treat cases of rupture of the uterus caused by the passage of pieces of stick, etc., into the uterus and through the uterine wall.

Some of the differences between practice in India and practice at home are that in India we see many more neglected cases and also many that have been maltreated. We see many cases which would be rarely seen at home, such as—

1. Neglected cases of retroverted gravid uterus, with retention of urine. I was scarcely ever without two or three such cases in our wards. The women put off coming for treatment till the bladder was enormously distended; consequently it was usually about a week before the bladder wall recovered tone. It was a very rare thing for the woman to abort, and in nearly every case the uterus was easily put straight and kept in position without any support.

2. Cases of long-continued prolapse of the uterus, where not only the uterus but also part of the bladder and of the rectum are completely outside the vulva. I have seen several cases complicated with vesical

calculus in which the bladder was outside the vulva.

Prolapse of the uterus is in my experience much more common in some parts of India than in others. It is very common amongst women of the farmer class, who wear heavy cloths, most of the weight of which is supported by the waist. This, combined with the practice of tying a cloth very tightly round the waist after childbirth, tends by pressure from above to weaken the supports of the uterus. Then again practically every woman has her perinæum badly ruptured at the birth of her first child, and so the support of the perinæum and the levator ani is usually away. In operating on such cases one has to do a very thorough posterior colporrhaphy and often also anterior colporrhaphy before fixing the uterus.

In some parts of the country there is a practice of pushing up the prolapsed uterus and then inserting into the vagina a wood apple or bael fruit, both of which are hard and rough and about the size of a small orange. This causes much irritation and ulceration of the vagina and a very offensive discharge. I have seen many such cases, and have with difficulty removed the fruit in fragments. It is interesting to note that the uterus does not prolapse again ; this is due to the formation of inflammatory products and adhesions.

We see a great number of cases of cancer of the cervix uteri, but in almost every case the disease is too advanced for operation. Cancer of the breast is not nearly so common.

It is very difficult in India for a medical man to diagnose gynæcological cases, as the patient may give a very misleading history and usually refuses to be examined. A woman came to our general out-patient room complaining of difficulty of micturition. When

sent on to me and examined on the table, I found that the labia were enormously enlarged and the vulva a mass of ulceration. We saw many similar cases, all of them with a syphilitic history. One such case was a young woman who had been married some years and had contracted syphilis from her husband. She had been to many native doctors without getting any relief, and came as a last resort to us. After very free use of the actual cautery and treatment for some months, she ultimately got cured and later became pregnant and gave birth to a living child.

Owing to neglect at childbirth, when the head is allowed to be in the vagina pressing the bladder against the pubes for many hours and sometimes days, many women suffer from very bad vesico-vaginal fistulæ. Sometimes the whole floor of the bladder is destroyed and often the urethra is torn away. In such cases very successful repair work is being done in several mission hospitals in South India.

It is manifestly impossible for the few European and American medical women practising in India to meet the need of the women in the villages. The Indian medical women who have been trained at the provincial Government medical schools are few in number and are usually practising in large towns. Twenty-seven years ago an interdenominational Christian medical school for young Christian women who wished to qualify as doctors was started in North India, at Ludhiana. This school has been training and sending out to work in mission or other hospitals, or to engage in private practice, many young Indian Christian women, and is thus doing something in North India to meet the great need that there is for women doctors.

In South India in 1918 an intermission medical

school for young Indian Christian women was started at Vellore. There are now 92 students at this school. A large piece of land has been secured and plans for the building of a fine medical school and hospital have been prepared. The present staff of doctors is not sufficient for the work of the school and hospital, so that several well-qualified medical women are wanted to help in the teaching and in the hospital work. One hopes that medical schools for women will be started in other parts of India, so that before many years there may be a sufficiency of medical women in India.

# LEPROSY

BY

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It has been said of the leper that he is the melancholy figure of human history. Prophet, priest, historian, and poet, all have made him a subject of either judgment, mercy, tradition, or romance. He has been the cause of the most fearful loathing, and he has also wakened the finest instincts of human nature. During all the long ages the mysterious disease of leprosy has claimed young and old as the victims of an incurable affliction which has, until quite recent years, baffled all attempts to determine its causation or find a cure. Individual palliative effort in lands where leprosy abounds has brought relief in the past to but a comparatively small number of sufferers. It is beginning to break in upon thinking people that the time has gone by when personal service individually rendered can suffice to cleanse the world of leprosy. "Service," says Fosdick, "cannot refuse to face the necessities and to use the instruments which the new age in which we live has brought into existence." Co-operative effort on the part of all Christian people is demanded if we are to make any successful attack on this ancient disease.

There is scarcely a mission-field where leprosy is not found. The most extensive areas of the disease are in Asia, part of Africa, and the northern countries

of South America. The islands of the Pacific and the Philippines have also a large number of leper subjects. Climatic conditions do not influence the distribution of the disease, for we find it in the Arctic regions as well as in the Tropics and subtropical districts. It is difficult in Eastern lands to secure actual statistics, as there is always a tendency to understate insanitary conditions. There are said, however, to be about 2,000,000 lepers in the world. A large proportion of these will be found in China.

We are familiar in the Far East with the various forms of leprosy. No one can mistake a far advanced nodular or tubercular leper subject; he is to be seen in many of our large cities—a Bohemian, sometimes an Ishmael, almost always an outcast or a beggar. The anæsthetic leper is not so easily recognized. For years he may be possessed of the disease and his condition be unknown to those about him. It is only on examination at the hands of a specialist that his state is understood.

We have made little or no progress since 1874 in determining the causation of leprosy. At that date Hansen announced the discovery of the lepra bacillus. The question of how the bacillus is propagated outside the human body remains a mystery. Leprosy is a unique disease in this regard, that no satisfactory media has ever been discovered on which to cultivate its bacillus successfully. To treat the disease with a serum is therefore up to the present impossible, for the bacillus will apparently only grow on certain human subjects.

The fact that leprosy is not hereditary makes the work of rescuing the healthy children of lepers one of the utmost value. Long experience in the Far East has shown that where the healthy offspring of lepers

are separated from their leprous parents at an early date the children do not contract the disease.

Up to recent years, although there has been on the part of scientists a spirit of expectancy in regard to the discovery of a successful line of treatment, the segregation of the leper seemed to be the only possible public-health measure available for dealing with the growing menace of the disease. The indifference of most Eastern Governments to the subject has led to almost hopeless despair on the part of the advocates of segregation. If China is taken as an example, and if the attitude of the average citizen is of value in determining the urgency of the leper question among the people, then all that can be said is that for the most part there is a spirit of toleration, or at least one of neutral benevolence to the leper. The average Oriental is very long-suffering. Crowds of outcast leprous-ridden beggars gain their livelihood by surrounding the counters of the shops on the street, where they can only be got rid of by the handing over of a few cash. These pass from shop to shop, meeting with the same reception. It will be understood that this in no way relieves the situation and only brings into evidence the lack of public-health measures or provision for the outcast and diseased. As a matter of fact there has been for generations the utmost indifference to public-health matters in China. Only as her sons and daughters have in comparatively recent years gone across the seas for their education, or as the students in Christian schools have received instruction in their class work, has there come any consciousness whatsoever of public-health requirements. To the vast majority of the public to-day sanitation and public-health matters are absolutely unknown. The consequence is an appalling death-rate and an utter

indifference in most provinces to the wants of the sick and the woes of the leper and outcast.

Against this dark background there is the hope coming to the nation through Christian influences. Only as a comprehension of our obligation to our Lord and Master is gained is there any real desire to enter into the sufferings and wants of other human creatures. Until China and other Eastern races have come into direct contact with Christianity, little may be expected along the lines of philanthropy or co-operative action in the eradication of social ills. Christianity, for instance, has taught us that to make segregation humane and kind is to provide leper colonies, settlements or asylums under proper conditions where the healthy can be protected and the leper benefited, and where eventually, if carried out extensively, the disease will disappear. It is strange, however, to reflect that only within a lifetime has any systematic attempt been made to render Christian help to the leper. The work of the Mission to Lepers in this regard is of the utmost value. In its sympathetic attitude to the segregation of lepers, and in its provision for feeding, housing, clothing, and instructing them it stands as an example of true Christianity and merits the support of all Christian people. It should be noted that this Mission has also as one of its objectives the ultimate extinction of leprosy.

Quite recently great hope has come to all leper workers in Eastern lands because of the results of co-operative scientific investigations carried on in Honolulu, Calcutta, South Africa, the Philippines, China, and Korea. An old palliative used for generations by lepers in India, which was brought into extensive use in China more than twenty years ago, and which had to be discarded because of its irritating

qualities, has in modern times had much attention paid to it. Efforts have been made to remove the irritating properties of this old drug—chaulmoogra oil—or at least to modify its action by means of sedatives. Working with this latter preparation most wonderful results have, for example, been registered in Korea. Whereas the death-rate in a well-known leper institution five years ago gave an average of 25 per cent., to-day, by the weekly injection of a preparation of chaulmoogra oil and camphor, the death-rate in the same institution has been reduced to less than $1\frac{1}{2}$ per cent. Even better results have been reported with the most modern treatment, namely, that of the ethyl esters of chaulmoogra oil. The most recent official announcement from Honolulu states that for statistical purposes the patients under this treatment were divided into two groups. The first consisted of young adults, giving a history of the disease of from five to six years' standing. Of this class 20 per cent. were cured, 70 per cent. of the cases were arrested or showed great improvement, and 10 per cent. gave no result. The second group consisted wholly of chronic cases and older subjects; 3 to 4 per cent. of such lepers were cured. Seventy per cent. of cases were found to be greatly improved in health, and the remainder gave no results whatever.

To-day in many laboratories experiments are being conducted with other materials, having for their object an even better remedy than that so far produced.

So far as the eradication of leprosy is concerned we have a problem waiting for solution, and that solution seems near at hand. I can testify from years of practical experience that in his native state the leper is of all men most miserable. As he comes, however, into touch with the living Christ in our Christian institu-

tions, a vision of the loving, ever-present Friend is gained. He realizes that for him, the most neglected of men, the way is open right into the holiest. He understands by actual experience the heritage of even the poorest and the most ignorant. It is this above all else that changes the life and outlook of the leper.

# HYGIENE AND SCIENTIFIC RESEARCH IN THE MISSION-FIELD

BY

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It was not in mere figurative terms that the Hebrew psalmist wrote of "the noisome pestilence," and of the "destruction that wasteth at noonday." The dark places of the earth are full, not only of the habitations of cruelty, but they are lurking places of disease, foci of infection, and breeding-grounds of pestilence and plague. It is in the Mission-field that the elementary problems of hygiene are most insistent, and best studied. Our Mission hospitals are scattered blockhouses in the campaign against ignorance and pandemic disease.

Take the case of *sepsis*. What unspeakable suffering is caused in heathen lands by an entire ignorance of the simplest laws of hygiene! Job, sitting on the village ash-heap scraping himself with a potsherd, is emblematic of the misery and ignorance of primitive peoples afflicted with disease. In Africa the usual dressing for wounds and ulcers is a mixture of various irritant herbs, with red anthill earth and cowdung. In the early days of sleeping sickness in Uganda a native

medicine-man made a great name for himself, and incidentally a fortune, by professing to cure the disease. His method was to make incisions in the scalp of the sufferer, and rub in and plaster on such a foul mixture as that just described, and tie a smoked banana leaf over the application. A week later the application was removed, and the medicine-man pointed triumphantly to the wounds now pouring with suppuration, and said, "You see, the disease is coming out now!" Then, like a prudent man, he moved on to the next village, after first receiving heavy payment in sheep, or goats, or cattle, according to the rank and gratitude of his patient. We have seen the simplest wounds and sores followed by general septicæmia and pyæmia as the result of native treatment. In one case I had to open forty pyæmic abscesses as a result of a simple wound inflicted by native "cupping" septically dressed. A whitlow all too frequently becomes a palmar abscess, and the starting-point of septicæmia or pyæmia, from the same ignorance of how to deal with sepsis. Erysipelas and other forms of cellulitis are common in all primitive races. Splendid as is the constitution and physique of many of the primitive tribes in Africa and the East, they make but a poor fight against the germs of septic intoxication.

Then consider *epidemic disease*. This problem is found in its acutest form where these diseases run riot in virgin soil. Thus influenza raged in the Uganda Protectorate in 1919; 25,000 cases were officially reported, and approximately 12,000 died in the five districts of Buganda, Busoga, Bunyoro, Nkole, and Toro.[1] The mortality was thus close on 50 per cent. Sleeping sickness was first reported in Uganda in

[1] See "Annual Medical and Sanitary Report for Uganda Protectorate" for year ending December 31, 1919.

February, 1901,[1] in a paper issued from the C.M.S. Mengo Medical Mission Hospital. During the first three or four years of the epidemic accurate records were not available, but the total number of deaths in the Protectorate from this cause have been estimated at 200,000. The mortality was 100 per cent. I remember in the early days of the epidemic going to visit a garden by the shore of Lake Victoria where eighty Baganda peasants in the employ of the Mission used to live. We found seventy-eight of these had died, and the two remaining ones were sickening with the disease. The native friend by my side said sadly, "Lumbe [disease] has eaten up our fairest gardens." The population of the island of Buvuma, which used to number 22,000, was reduced to a few hundreds by the disease, and the same was true of other islands, and around the shore of the great lake. On the report received from the Mission the Government at once instituted the remarkable series of scientific observations, by successive sleeping-sickness Commissions, which led to such brilliant results. The disease which had baffled scientific Commissions, sent out by at least three European nations during the course of the last one hundred years, was solved in Uganda by Professor (then Dr.) Aldo Castellani and Colonel Sir David Bruce, and proved to be due to *Trypanosoma gambiense* inoculated by the bite of the tsetse fly, *Glossina palpalis*. The distribution of the fly was carefully and accurately worked out, and what was more important still the legislative and preventive measures were instituted,[2] which unfortunately limitations of space pre-

[1] "Notes on Cases of Sleeping Sickness occurring in the Uganda Protectorate," *Journal of Tropical Medicine*, July, 1901.

[2] See Bruce, Minchin, and Sambon, "Proceedings of the First International Conference on Sleeping Sickness," 1907

vent me from describing here, but which have practically banished the disease from the Protectorate, as the following figures prove :[1]

Total of deaths from sleeping sickness in the kingdom of Uganda in *1905*, 8,003 ; *1910*, 527 ; *1915*, 3 ; *1917* and subsequently, *nil*.

Further advance has since been made in the treatment and cure of the disease in its early stages, and experiments are now being made in the treatment of this quondam incurable disease in its established stage by intravenous injections of salvarsan, combined with intrathecal injections of salvarsanised serum.[2] These facts suffice to show (1) the value of scientific research in alleviating and removing the veritable death-scourges of the world ; (2) the happy relationship that is established where British protectorates so signally protect the lives and interests of the primitive peoples that come to trust under their ægis ; (3) the no less happy co-operation that obtains where Mission and Government together work for the benefit of the native races.

Smallpox is a disease that works great havoc in the Mission-field. Thus in Egypt it is said to have a mortality of 25 per cent., and to leave a train of 4 per cent. of blindness. At the last census in Egypt more than half a million persons were found blind in one or both eyes[3] from this and other causes. In

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also, Bulletins of the Sleeping Sickness Bureau ; also "Reports of the Sleeping Sickness Commission of the Royal Society," 1902, 1903, and 1908 (Castellani, Bruce, Nabarro, Greig, Low).

[1] See "Annual Medical and Sanitary Report for Uganda Protectorate" for year ending December 31, 1919.

[2] Marshall and Vassallo, *British Medical Journal*, 1920, 1921.

[3] Balfour, "War against Tropical Diseases," p. 160.

Central Africa it is said to be more active than elsewhere.[1] Can we wonder, when it is a habit of the natives for the patients' friends or attendants to treat such cases by squeezing out each individual pustule as it ripens! Fortunately there are no conscientious objectors to vaccination in Africa. In 1900 a very virulent epidemic swept through Uganda. One active tube of vaccine had been imported into the Mission hospital; from this source a few successful vaccinations were made, and then trained native hospital "boys" were sent out from the hospital to various centres, and in a few weeks 10,000 vaccinations were successfully performed, and the epidemic was arrested.

Dysentery is a disease much dreaded by the African; both the amœbic and bacillary forms are frequent. The mortality amongst the weaker races is very high. In 1911 in Toro a specially severe epidemic was experienced at Kabarole; the mortality in the native plantations was said to be cent. per cent. Such was the terror inspired by the disease that when one case was brought to the Mission hospital all the patients rolled up their mats, left their beds, and threatened to leave the hospital if the case were admitted. It took two hours' argument to persuade them to come back, and consent to the patient being treated in hospital. The fruit of the moral victory was seen in seventeen recoveries out of the first nineteen patients admitted to the hospital. From the very nature of the case the dysentery patient has a poor chance in his own home, where nursing is unknown, milk usually unprocurable, and the diet of necessity plantains or meat, and no medicines except gastro-intestinal irritants and purges.

Plague sweeps like the destroying angel through

[1] Castellani and Chalmers, "Manual of Tropical Medicine," p. 1487.

the crowded bazaars and insanitary cities of the East. The Mission hospital is often sorely put to it to meet the demands of this epidemic. Yet much work of infinite value to the cause of Missions, and the extermination of disease, has been done by the fearless way in which our Mission doctors have thrown themselves into this campaign. Alas! it has been at a terrible cost sometimes. At the time of writing we mourn the loss of two C.M.S. doctors (the Rev. Marcus Mackenzie, M.D., and Dr. E. F. Lawson), who last June laid down their lives through attending a case of pneumonic plague in a native hovel in Foochow. The value of anti-plague inoculations in the Mission-field has been sufficiently established to indicate lines along which this and kindred problems are most wisely tackled. The Mission hospital also, in many instances, issues literature dealing with the treatment and prevention of this and other forms of epidemic disease, organizes campaigns against the flea-infected rat, notifies the authorities of early and suspicious cases, and in every way co-operates with the powers that be in fighting the fell complaint. Perhaps it is not generally realized how fatal plague is when first imported into a new country. The disease was first recorded in Kampala (Uganda) in 1916. Of the first 238 cases 216 died, although the type of disease at that time was only bubonic; since then pneumonic cases have made their appearance.[1] Perhaps also it is not generally realized what extreme vigilance is necessary to prevent plague cases being admitted to the general wards during an epidemic. In 1916 the

[1] Government returns for the three principal townships during the five years, 1915-1919, show: At Entebbe, 34 deaths out of 38 cases; at Kampala, 326 deaths out of 360 cases; at Jinja, 91 deaths out of 109 cases.

Kabaka (native king) of Uganda drove a favourite lad of his in his own motor car up to the Mission hospital, and asked us to take him in as he had "fever." A careful examination of the lad, who did not appear profoundly ill, made us suspect plague. He was dead in a few hours. By a merciful Providence no one else caught the infection from him. It fell to the lot of the Mission doctors to dissect scores of dead rats, brought to them to determine if the district they came from was infected; fortunately none of the doctors contracted the disease from this. The usual routine was to drop the dead rat into paraffin to kill the fleas before the dissection was commenced.

But space prevents one from dealing *seriatim* with other forms of epidemic disease frequently found in the Mission-field, though reference may be made to cerebro-spinal meningitis, typhoid fever, typhus, and cholera—the scourge of India and the East, for which so much can now be done thanks to the researches of Lieut.-Colonel Sir Leonard Rogers. All these great epidemic diseases afford the grandest opportunities for service, and openings for scientific research in prophylaxis and treatment.

We have not, however, only to face periodical tidal waves of epidemic disease. There are many forms of *endemic disease* which endanger the health and lives of the backward races of the earth, the alleviation and cure of which are entrusted to our hands.

Take the case of malaria, the ubiquitous fever that slays its tens of thousands in the Mission field, and whose presence or absence determines a locality as healthy or deadly to its inhabitants. What sadder sight meets the medical missionary than whole villages where the swollen bodies and shrivelled limbs of the population are a visible index to the pestilent character

of the adjacent swamp, and activity of the mosquitoes bred therein? In Uganda in 1919 out of 30,500 recorded deaths, 4,757, or over 15 per cent., were due to this cause alone. It was this that gave the Gold Coast the ominous sobriquet of "the White Man's Grave." In the unhealthy plains of Lower Bengal immense numbers of malaria-stricken natives throng to the Mission hospital at Ranaghat for treatment. Some 70,000 to 80,000 out-patient attendances are recorded every year, and in the malarious season as many as 1,800 new patients have been treated on a single day.[1] Blackwater fever, that deadliest accompaniment of malign malaria, still presents a unique field for investigation and original research in the Mission-field. Its cause is still unknown. It would seem to be a place disease. Its virulence varies with particular epidemics, and is largely dependent on the skill with which the cases are nursed and the earliness of the treatment. It is nothing short of tragic to reflect upon the high toll of life that malaria exacts, when one remembers that the disease ought to be, and is in most cases, curable, that we have the remedy in our hands at comparatively trifling cost, that lives can be protected in the unhealthiest districts by modern medical science, and that by application of the laws of hygiene and preventive medicine villages and towns hitherto pestilential can be rendered safe and healthy. Quinine, the mosquito net, and a knowledge of hygiene could save hundreds of thousands of lives that perish annually from this fell disease.

Tick fever, kala-azar, and Malta fever form a triad of diseases which are responsible for an immense amount of suffering, debility, and death, and yet are

[1] *The Mission Hospital*, August, 1922, p. 210.

both preventable and curable. Rarely seen in this country, they are every day encountered in the Mission hospitals of Africa and India. Kala-azar cases form 12 per cent. of the total admissions in C.M.S. Ranaghat hospital. About 8,000 intravenous injections of salts of antimony were given in 1921 for that disease in this hospital.[1]

Consider the many endemic parasitic diseases. There is a happy hunting-ground for the helmintholo-gist in Africa, India, and China. The modern plagues of Egypt—ankylostomiasis, bilharzia and pellagra—bring many thousands of patients annually to the Mission hospitals in Old Cairo, Menouf, and Omdurman. At the C.M.S. hospital at Old Cairo alone in 1918 over 13,000 cases of ankylostomiasis were admitted as in-patients,[2] the large majority of them leaving cured of their disease. Over 2,000 intravenous injections for bilharzia were performed in the same hospital, very shortly after the new treatment for this disease was discovered. Untold suffering is caused in Africa and elsewhere by the widespread infection with *Ascaris lumbricoides* and other intestinal parasites. The unspeakably insanitary habits of the African native and the Indian and Chinese coolies explain the wholesale infection of the population with such parasites as ascaris, *Ankylostomum duodenale,* bilharzia, tæniæ, etc. It is a pathological tragedy that santonine and felix mas are such expensive drugs. "China and the Far East seem to be especially the happy hunting-ground of almost all varieties of intestinal parasites, and of those affecting the liver," says Maxwell.[3]

Filarial infection is abundant in most tropical and

[1] *The Mission Hospital*, August, 1922, p. 211.
[2] *Mercy and Truth*, June, 1921, p. 126.
[3] "The Diseases of China," Jefferys and Maxwell, p. 137.

subtropical stations in the Mission-field, and one variety gives rise to elephantiasis, which the missionary surgeon is frequently called upon to relieve by operation, tumours weighing up to and over 70 lbs. having been removed successfully in our Mission hospitals. There is abundant opportunity for research as to the best method of treating the form of this disease that attacks the skin of the lower extremities.

The fact that the native usually ascribes the internal pains caused by intestinal helminthiasis to satanic agency emphasizes the value of modern medical science as a missionary agency. Thus the experience of a lady missionary at Kaosanshih, in the Fukien Province of China, is typical of many another worker in medical missions: "A woman came to hospital suffering from indigestion, supposed to be caused by a demon who possessed her. Santonine exorcised him, and she and her mother-in-law are now catechumens."[1]

Venereal disease is responsible for immense loss of life and sapping of strength amongst the primitive races, especially where civilization has brought its vices, rather than its Gospel. Alas! this toll of life and strength is exacted not only from those who contract the infection, but from their children to the third and fourth generation. It is chiefly owing to this that the birth-rate is so low, and the death-rate is so high, and sterility so frequent in the native races in many parts of the Mission-field. Lambkin[2] gives a lurid account of "An Outbreak of Syphilis in a Virgin Soil," and describes the disease as he found it in Uganda. I have personally analyzed 40,000 consecutive attendances at the C.M.S. Hospitals in

[1] *The Mission Hospital*, August, 1922, p. 221.

[2] "A System of Syphilis," D'Arcy Power and Keogh Murphy, vol. ii., pp. 339-355.

Mengo (30,000), and Toro (10,000), and found that in both countries the cases of active venereal disease requiring treatment at the hospital dispensary were 22 per cent. of the total number of sufferers from all causes. Dr. A. R. Cook, C.M.G., O.B.E., the founder of Mengo Hospital, Uganda, in the last Report issued by the Hospital,[1] speaks of a social purity campaign undertaken by himself and Mrs. A. R. Cook at the request of the Government and Synod of the native Church, during which fifty-six public meetings were held in different centres in the Protectorate, with audiences totalling over 11,000 people, to whom special propaganda anti-venereal literature, prepared by the Mission and Government in co-operation, was distributed. The tour afforded a unique opportunity for investigating the distribution of the disease. Thus in Bunyoro Dr. Cook found that 84 per cent. of the population gave a history of venereal infection. On representing this grave fact to the native king of the country, Dr. Cook heard to his amazement, not an indignant disclaimer, but the astonishing reply : "And you may be quite sure, sir, that the other 16 per cent. have had it too!" Amongst the obstetrical[2] cases attending the practice of the hospital 66 per cent. gave a history of syphilis (contrast the 5 per cent. in this country). But the effect of this is best seen by the incidence of the disease on the infantile mortality of the country. In the statistics of Mengo Hospital[3] it was found that 75 per cent. of the pregnancies among the people of Uganda end either in abortion or miscarriage, premature labour or still-births, or

[1] "Mengo Medical Mission Report," 1921.

[2] *The Mission Hospital*, January, 1922, p. 19.

[3] "A System of Syphilis," D'Arcy Power and Keogh Murphy, vol. ii., p. 348.

else the infants die within the first week of life. This latter result is mainly due to syphilis, which in this connection the Baganda call *munyo*. *Munyo* is a word that means "salt"; the Baganda attribute the appallingly high infantile mortality of the country to the habit of pregnant women eating too much salt! Is not this an appeal to the missionary doctor to enlighten and evangelize?

But pause a moment. An infantile mortality which, adding in the miscarriages and infants that die under a week old, reaches 75 per cent.! Is it possible? Only one child in four survives, whereas in England the latest statistics give an infantile mortality of 8 per cent.—*i.e.*, only one child in twelve dies![1] Here surely is a call to the medical profession to do more for the rescue of the sufferers in foreign parts who are dying out, they know not why.[2] Here is a call to those who love the Lord to save unborn generations of those for whom He died. Here is a call to the State (to which our Government has nobly responded) to undertake legislative and educative measures for the relief of a people who have by treaty put their trust in our protection. There is no country where a finer example is afforded than in Uganda of the way in which the Government and the Mission are co-operating for the uplifting of the native races.

But are the missionary statistics exaggerated? Let us compare the Government returns. Table III.B[3] shows the percentage of still-births alone (in the five

[1] Ashby, "Infant Mortality," 1922, p. 3 (Cambridge University Press). And these figures include all the deaths up to twelve months of age (see p. 2).

[2] For fruit of administrative action on public health see *British Medical Journal*, August 26, 1922.

[3] "Annual Medical and Sanitary Report for Uganda Protectorate" for year ending December 31, 1919.

more important provinces of Uganda) to the total births as 33·19 per cent. in Bunyoro and 32·12 per cent. in Toro. Add in the early miscarriages and the deaths under a week old, and the figures will not be disproportionate.

Balfour states: "The infant mortality of Egypt is appalling, one-third of the children born dying in infancy."[1] Neve states the infantile mortality in Kashmir to be nearly 50 per cent.[2] This infantile mortality is not only due to (1) venereal disease, though undoubtedly that is the principal factor. We must, however, also add (2) native ignorance and neglect. As an example I may cite the case of triplets born in Mengo Hospital, premature children weighing only slightly over 2 lbs. each. For lack of better equipment they were reared in a Hearsey's bacteriological incubator for a month, the instrument being lined with three nests of absorbent cotton-wool! At the end of the month the three babes were restored, plump and healthy, to their mother, who took them out into the banana plantation the first night after they left the hospitable warmth of the incubator, and washed them in *cold water*. They all got bronchitis, and one died. (3) *Native drugs*. I collected fourteen different drugs used by natives either in pregnancy or during labour to expedite delivery, and sent these (by courtesy of the Government) to the Imperial Institute, London, to be analyzed. When the report in due time was received it was found that most of them contained powerful alkaloids, gastro-intestinal irritants mainly, some being oxytocic! Remember, these drugs are given in unmeasured doses! The roots or leaves are stewed and stewed, and given to the woman by uneducated and

[1] "War against Tropical Disease," p. 146.
[2] *Mercy and Truth*, August, 1921, p. 197.

ignorant women friends. The consequence is that where native medicine has been taken three results are commonly seen: (1) *Toxic*. Violent purging and vomiting, and the patient may die poisoned. (2) *Tonic contraction* of uterus ending in premature labour, if before term, precipitate labour if given at term, or ruptured uterus if obstruction exist. I have had to operate on five cases of ruptured uterus from this cause in the short space of two months in Mengo hospital. (3) *Uterine inertia,* following the tonic contraction. Many a time has one been summoned to attend women when labour has been prolonged three or more days, and the only impediment has been uterine secondary inertia consequent upon the use of these drugs.

A signal example from the obstetric department of the effect of ignorance in childbirth is seen in the Nubian custom of stitching up the maternal parts after conception. During labour the midwife assists Nature by cutting through with a native knife, septic of course, the line of union of those parts. Occasionally, however, difficulty may arise, as in a slave-girl captured by the Nubians from Toro, who was brought to Mengo Hospital in labour. Drugs had been given, the stitched up parts had not been liberated, and the recto-vaginal septum had given way before the line of suture, and the case arrived as a face-presentation *per rectum*. Except for an extensive perineal repair being necessary, the poor girl made an excellent recovery, and eventually became one of our brightest and most intelligent hospital nurses, and also became a Christian and was baptized, her name being changed from "a bond-woman" into "We rejoice in Him."

Space prevents one from dwelling longer on the urgent appeal that comes from the widespread suffering entailed by venereal disease, and the widespread

ignorance which, combined with the latter, is responsible for such heavy loss of life. Suffice it to say that the Government returns already alluded to give the following figures showing the increase of deaths over births in Uganda Protectorate during the three years 1917-1919, viz. : In *1917,* 1171 ; *1918,* 2,738 ; *1919,* 12,951 ; the figures in the last year being swollen by the world-wide epidemic of influenza.

In the last seven years taken together the births in Bunyoro totalled 15,791, whilst total deaths and still-births for the same period numbered 30,669.[1]

Allusion must be made to the endemic diseases of leprosy and tuberculosis in the Mission-field. To the larger Mission hospitals of India and China tuberculosis sanatoria and leper asylums are attached, and a splendid work has thus been accomplished, the leavening influence of which is felt far and wide. The late Dr. Marcus Mackenzie contrasts the Chinese treatment of their own lepers prior to the advent of Christian Missions with that obtaining at the present time : "At one time all the lepers of a town were disposed of by one ruthless act of massacre, but recently Dr. Wu-ting-fang gave an island, called Tai-kam, off the coast of Kwang-tung, as an isolation place for lepers. A well-to-do Chinese merchant contributed 2,000,000 dollars to provide houses for the lepers on this island. Last, but not least, an able and popular Chinese clergyman in Hong Kong has offered to spend his days on the island administering to the spiritual needs of the leper." The leper establishments afford excellent opportunity for the testing of the newer forms of treatment, and for original research for the inestimable benefit of the native. With regard to tuberculosis much valuable work has been done in the

[1] *The Mission Hospital*, January, 1922, p. 19.

Mission-field, and a C.M.S. medical missionary was for many years Tuberculosis Officer to the Government of India.

*Sanitation.*—Even the most elementary intelligence of the principles of hygiene is lacking in the primitive races, and the health of the community correspondingly suffers. Nor is it at all an easy job to instil those principles when ignorance is wedded to religious customs and superstitious practices, and both are opposed to the march of modern science!

The disposal of refuse and excreta, difficult even in country districts where no law is recognized except the need and call of the moment, becomes a grave problem in the overcrowded cities of the East. One of the difficulties in a Mission hospital with an excellent system of latrines and incinerators, is that the native patient under cover of darkness uses any part of the hospital floor, or precincts, in preference to the appointed place. Hence a system of sanitary attendants or inspectors is early necessary. This difficulty is enhanced by the native African (the Sudanese perhaps excepted) flatly refusing to handle sanitary buckets and utensils, on the plea that they eat with their fingers. Pioneer hospitals generally have to fall back on the trench or bucket system, with specially trained orderlies, and simple types of incinerators for dry refuse can be erected at trifling cost to work with wood fuel. Dirty dressings are advantageously destroyed in these.

The risk of infective insects is hard to instil into the native mind. When the cause of sleeping sickness in Uganda was traced to the bite of the tsetse fly, the native said gravely that he believed it on our word, but added that *he* knew it was really transmitted, like the measles, by sleeping in the bed of an infected person,

and when we asked for the tsetse flies to be brought for examination to our laboratory, the native chiefs sent their own children out to the lake shore where the deadly insect swarmed, and told them to lie out in the shade after they had well lubricated their bodies with rancid butter to attract the fly, and later on they collected the tsetses from the living fly papers of their children's bodies (until we heard the method they adopted and stopped it !). On the other hand, they quickly recognize the risk of being bitten by ticks and mosquitoes and bugs, and usually try to avoid this. The risk of contamination of food with flies is not recognized, and maggots are a common accompaniment of any septic wound. I have myself removed no less than seventy-six larvæ from one septic wound of the elbow. The appallingly primitive ideas with regard to disposal of excreta account for the prevalence of ankylostomiasis, coolie-itch, bilharziosis, etc. The meat in native markets is usually infected with *Tænia mediocanellata*.

The water supply is frequently of the impurest, and is usually stored in pots that breed the larvæ of culex and anopheles with the attendant risks.

Balfour[1] gives an instructive picture of a donkey he saw in the streets of Bogota loaded with an open milk-can on one side and a barrel of hog wash on the other. This is emblematic of how food and the impurest refuse are kept in juxtaposition amongst primitive peoples.

Every principle of ventilation is violated amongst such races. The African makes no windows to his hut, and only a small door, and further obstructs the inlet of fresh air by curtains of bark-cloth and a smoky fire. In hospital, where he finds proper ventilation provided, he buries himself, head and all, in his

[1] "War Against Tropical Disease," p. 61.

blanket. Overcrowding of the sick-room with passive friends, who do nothing but consume available oxygen, is another difficulty the hygienist has to fight. And if these are problems in the breezy uplands of Central Africa, flooded with a tropical sunshine that is such a disinfectant in itself, what must they be in the crowded and foully insanitary bazaars of Eastern cities?

In Persia a striking influence of the effect of grossly unhygienic surroundings is seen amongst the little carpet-weavers of Kerman and neighbouring villages. Children of five years of age and upwards sit all day long in cramped positions at the looms in ill-ventilated rooms, and suffer from a late form of rickets, which gives rise to fantastically curved limbs and severe pelvic contraction. When the girls become mothers Cæsarean section is often the only means of saving the life of mother and child. The Medical Mission has brought physical and spiritual salvation to many such. Deformed limbs have been straightened surgically. Cæsarean sections (about one a month in C.M.S. Hospital, Kerman) have saved lives in extremity, and best of all the Mission has been instrumental in inducing the Persian Government to introduce legislation which promises to ensure more hygienic conditions for the little workers who make the rugs and carpets so much prized in this country.[1]

The dissemination of infection in cases of trachoma and suppurative ophthalmia is largely due to the ignorance of the people. In Cairo 90 per cent. of the pupils in the Government primary schools, we are told,[2] suffer from trachoma. Balfour also relates[3] that

[1] *Mercy and Truth*, August, 1921, p. 190.
[2] "War Against Tropical Disease," p. 170.
[3] *Ibid.*, p. 150.

under the native regime for ophthalmia "it is considered most important that the eyes should not be washed for forty days, and it is not uncommon to see children with both eyes completely covered with a dry scab, which the parents refuse to have removed, although pus may be streaming down the child's cheeks." One often sees in Palestine, Africa, and the East children whose eyelids are as thickly crusted with flies as the treacle-papers in the bazaar.

One may sum up the whole problem of hygiene by saying that it is chiefly by the practical object-lesson of efficient up-to-date hospitals (Mission or otherwise) that the natives must be taught the primary lessons of hygiene. Further, since such lessons must appear to the natives revolutionary with regard to their inherited prejudices and mode of life, infinite patience must be observed, and a dogged refusal to accept defeat or compromise.

*Research.*—This chapter may be fittingly concluded by a few observations on the importance and opportunity of research work in the Mission-field. Year by year there flows through the portals of our Mission hospitals a steady tide of suffering humanity. Amongst the diseases recorded in our hospital registers there are many whose causation is unknown or only partly known, and whose treatment is at present obscure and unsatisfactory. There is a unique opportunity for the observation and elucidation of such diseases, and for the application of the newer forms of treatment, and the investigation, empirical or deductive, of the problems connected with them. There are several reasons why the Mission hospital is the best place for such investigation. (1) The medical missionary early commands the confidence and co-operation of the native, and patients readily come to

him and agree to his treating them. (2) He is well acquainted with the native language, and therefore accurately understands the patient's description of his complaint, and gathers reliable information of the distribution of the disease. (3) He has immense numbers of patients to treat, and thus abundant material to draw on for investigation. (4) He has a trained staff of European and native assistants.

What are the indispensable conditions for original scientific research? Scientific ability, money and equipment, materials and opportunity. We may at once acknowledge that the medical missionary could not, and would not wish to, compete with Government Commissions in the field of scientific enquiry; but he can co-operate with them, and collect material for them, and do invaluable work in preparation for them. To borrow a metaphor from the Air Force, if he cannot be a *pilot* he can be an *observer,* and trained observation is of the utmost value. Let us consider a few instances of the sort of work he can do, some of which have already been alluded to. It is essential that in every Mission hospital accurate notes of all the patients admitted to the wards—history, present state, daily notes, operations, treatment, etc.—should be kept, indexed, and if possible bound. This will at once furnish most valuable material, when any given disease is being investigated, or sporadic cases of newly imported or undescribed diseases occur. By this means tick fever and sleeping sickness were first described in Uganda, the alarming infantile mortality was discovered, and the venereal problem investigated. The effect of native medicines was another natural enquiry. Various reports on these subjects being forwarded to the Government, special Commissions were sent out, whose brilliant researches are now his-

toric documents. The work was done by eminent scientists, but the Mission had the privilege of preparing the way in a humble capacity, and in some directions co-operating with the Commissions. A further practical result of the Mission enquiries was the establishment of a Mission Medical School and Maternity Training School. In Egypt the C.M.S. hospitals at Old Cairo and Menouf have done extensive work in the treatment and investigation of ankylostomiasis and bilharzia as above described, and at Old Cairo of Egyptian splenomegaly by splenectomy. At Shikarpur every year an annual visit is made by the N.W. Frontier Mission hospital staffs,[1] and last year some 1,203 operations for cataract extraction were performed in twenty-nine days, an experience which must have afforded ample opportunity for testing the value of intracapsular extraction. At Ranaghat, Bengal, over 8,000 intravenous injections for kala-azar were given last year. At the various leper asylums Sir Leonard Rogers' treatment of leprosy by the intravenous injections of hydnocarpate of soda and morrhuate of soda is being tested on a large scale, and doubtless valuable information will thus be afforded. At Srinagar Dr. Ernest Neve has made valuable investigations into the Kangra button. In China a most valuable work on the tropical diseases of China was compiled by two medical missionaries, Jefferys and Maxwell. Professor Balme has given us, in his interesting work, "China and Modern Medicine," a comprehensive review of the part medical missionaries have taken and are taking in medical research problems in China.[2] An appendix to that work[3] gives a list of scientific

[1] *The Mission Hospital*, August, 1922, p. 207.
[2] "China and Modern Medicine," pp. 154-179.
[3] *Ibid.*, pp. 207-211.

articles and books contributed by Chinese medical missionaries—a long and instructive list.

As to the second condition for research, it is becoming increasingly recognized that the medical missionary requires up-to-date equipment for the prosecution of his daily work, and the efficient relief of suffering. The larger Mission hospitals are, moreover, furnished with modern X-ray apparatus, bacteriological and pathological laboratories, and native medical schools. In other words, the equipment of modern scientific research is at his disposal, and trained native assistants are soon obtained, if not already on his staff. It is in the efficient training of native collaborators and assistants that the most hopeful prospect for missionary scientific research is to be found. In the C.M.S. Hospital at Isfahan, Persia, the laboratory is in the charge of a trained Persian assistant, and Wassermann and Widal tests are made, the preparation of autogenous vaccines is undertaken, and tuberculin treatment regularly carried out.

With regard to the last condition, viz., the time and opportunity factor, the chief difficulty lies in the overworked and understaffed condition of most of the Mission hospitals. The remedy at the present time would seem to be in the direction of co-operative work, and Union hospitals where there is more than one Mission in a district or province. The magnificent work being accomplished on these lines in the Shantung Christian University at Tsinanfu, and the West China Union University, Chengtu, and elsewhere, shows what can be accomplished in the way of efficient medical education, and doubtless at such institutions research work will soon be found to occupy an important position.

The organization of medical missionaries of different

societies in China into one Medical Missionary Association (founded in 1838) has rendered possible the production of much valuable scientific literature in the vernacular,[1] and the *China Medical Journal* testifies to the scientific ability and work of medical missionaries during the past thirty-three years. A similar organization and journal exists in India. In Uganda a branch of the British Medical Association was inaugurated in 1914, and the first President of the branch was one of the medical missionaries, and the first meeting took place in the Mission hospital. Such professional gatherings greatly stimulate the scientific activities of the medical missionary, and the missionary interest of his scientific colleagues.

The practical conclusions that we have come to in this chapter may be summarized as follows :

1. Great suffering and loss of life are occasioned by the epidemics which from time to time sweep like a tidal wave over the Mission-field.

2. The primitive condition of the backward races, and the crowded and unhygienic condition of Tropical and Eastern cities favour the spread of infection, and the harbouring of much endemic disease.

3. Venereal disease, leprosy, tuberculosis, and helminthiasis present special problems in certain parts of the Mission-field.

4. The medical missionary has unique opportunities, not only for the relief of suffering, and the propagation of the Gospel, but for the organization of a campaign against epidemic and endemic disease, whereby he will materially improve the health of the community in which he lives, and by the issuing of propaganda in the vernacular, and by the education

[1] " China and Modern Medicine," p. 131.

of the native races in the elementary laws of hygiene, he will save countless lives.

5. It will fall to his lot to build up a native medical and nursing profession, which is absolutely essential if the needs of the native population are to be adequately met both from the educational and hygienic standpoint.

6. There are unique opportunities in the Mission-field for scientific research, and a good deal has already been accomplished by medical missionaries in that direction.

7. Co-operation between different missionary societies, and the establishment of Union hospitals, would appear at the present time to hold out the best prospect of professional efficiency in education and research.

# THE HOSPITAL

BY

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## What it is

Three types of hospital are to be found on the Mission-field to-day.

1. There are what may be called the medical "out-stations," scattered along the front line of missionary conquest. These "hospitals" have, as a rule, very limited accommodation for in-patients, since the work is carried on in temporary buildings usually adapted from native dwellings. These centres, ill-adapted as they are for medical work, are by no means to be despised, for it is here that the medical missionary "digs in" where opportunity offers in the only quarters which are available in face of local opposition and misunderstanding. In the history of Medical Missions they have opened doors fast-closed to any other appeal, and on many fields they are still greatly needed. In them are to be found some of the best all-round medical practitioners, skilful physicians and surgeons, giants of faith who hold on in spite of meagre equipment because they know that unless they do the work it will never be done at all.

2. The second type may be called the "up-country

hospital." In most cases it is built, metaphorically at least, on the foundations of the out-station. It consolidates the position. Its buildings have been carefully but economically planned, and it usually has accommodation for fifty or sixty beds, with often a maternity block in addition, and a large out-patient department. As an integral part of such a hospital one usually finds a training school for nurses.

3. Then there are the "base-hospitals," found in the large cities, where an attempt is made to supply the needs of the great centres of population. Such hospitals are not built in a day. One of them with which the writer was associated in China was founded eighty-five years ago, and now has 235 beds. On its medical staff are seven foreign doctors, two foreign nurses, and one business manager. In addition there are twelve Chinese graduate assistants, two pharmacists, four Chinese graduate nurses, and twenty-four nurses in training. The following statistics are taken from the Annual Report for 1919: 2,319 in-patients were admitted during the year, of whom 53 per cent. were surgical, 31 per cent. medical, and 17 per cent. cases of eye, ear, nose or throat disease; 1,171 major surgical operations were performed and the total number of first visits to the out-patient department was 10,307. In addition to these, 1,411 private cases were treated during consulting hours, and 175 out-calls were attended in the city.

Only those who have visited these countries can realize the wealth of clinical material which passes through such hospitals. Why should there not be missionary pathologists and research-workers as well as missionary physicians and surgeons? The contribution of the one would be quite as valuable as that of the other.

## Modus Operandi

The writer has had the privilege of working in each of the three types of Mission hospital just described, and a few incidents taken at random from one's early experiences will, perhaps, help to describe the hospital in action.

The first type, of course, is pre-eminently the work of the pioneer. The scene of my earliest work was a country market-town in the centre of a notoriously anti-foreign district which had successfully defied several previous attempts of missionaries to establish work in its territory. No medical work, however, had been attempted. We commenced work in the only place available, the premises of a pea-nut oil store, which were rented after much difficulty. One of our early cases was a tracheotomy for diphtheria, which fortunately was successful, and incidentally swept away a great deal of the suspicion with which the advent of the hospital had been viewed hitherto.

Another case was that of a child who fell from a loft, receiving a lacerated wound of the thigh, with hæmorrhage, which a native "doctor" was unable to control. The effect of a whiff of chloroform and a ligature applied to the bleeding vessel, in full view of a crowd of anxious relatives and curious neighbours who peered through the windows and doorway, also did a great deal to turn the tide in our favour.

Another case was that of double cataract in a blind beggar who for several years had been accustomed to stump the country-side selling lottery tickets. He was such a familiar landmark in the district that on his return to "business," with his eyesight restored, he did more to undermine the opposition than tons of argument.

My first obstetrical case was a boat-woman in difficulties with a transverse presentation. In the bottom of a cargo-boat, under an awning, lay my patient in travail. A paper charm had been tied round the wrist of a prolapsed arm from which native midwives had already removed most of the skin in their attempts at *accouchement forcé*. A Taoist priest was sitting on the river-bank alongside setting off fire-crackers and beating a little brass gong in his endeavours to drive off the evil influences responsible for the dystocia. The removal of the case to hospital and a happy termination for the mother gave us another lift forward towards our objective.

Another case one recalls was that of an emaciated young woman suffering from pyloric stenosis due to the contraction of a chronic ulcer. The result of a gastro-enterostomy in giving her a new lease of health and happiness was just as dramatic as it so often is in similar circumstances here at home.

These incidents are quite typical and might be taken from the diary of any medical missionary who is familiar with the struggles of pioneering work which, by the blessing of God, has so often changed hostility to the "foreign invader" into an atmosphere of friendliness and mutual understanding. It is not always the most successful medical cases which prove to be the greatest achievements from the missionary point of view. One has known the removal of an offending molar or the opening of a painful whitlow to lead to greater things than some of the successes which cost us days and nights of anxiety and a great amount of hard work. The indication is to sow the seed under all circumstances, "for thou knowest not which shall prosper, whether this or that, or whether they both shall be alike good."

## Variety of Clinical Cases

One is frequently asked, What kind of cases do you meet with in a Mission hospital? The only answer is, All the cases you meet with in a London hospital and a good many more you don't. In any out-patient clinic in South China you will find the tubercle bacillus doing its deadly work in viscera, bones, and joints; carcinoma and sarcoma are both very common. Benign and malignant tumour growths when they come before us have often assumed enormous proportions. One recalls a case of ovarian cystoma which when removed weighed 116½ lbs., and the patient who was left behind (and made an excellent recovery) weighed only 79 lbs. Vesical calculus is very common in some countries. In one year (1919) the Canton hospital treated 71 cases of this disease, and has records of over 3,000 such cases operated upon by suprapubic cystotomy, perineal section, or litholapaxy. The "acute abdomen" is often with us though not so frequently, I think, as at home. Fractures are rare except in the big centres—*e.g.*, Shanghai, Peking, Hankow, Canton, and Hong Kong, where railways, factories, and motor-traffic are responsible for frequent casualties. Gunshot wounds are common, for even when military operations are quiescent there must needs be, in China at least, incessant warfare against banditti who infest the country districts.

The variety of medical cases treated is no less extensive, for it is a mistake to suppose that the work of a Mission hospital is almost entirely surgical. Superadded to the usual list of cases found in our medical wards at home, is the whole field of tropical medicine. No department of medical work is richer in missionary

results than that of gynæcology and obstetrics, for a heavy burden rests on womanhood in the non-Christian lands.

## Quality or Quantity

Arrived on the field, we soon realize (and it were better to realize it sooner) that we cannot deal with *all* the sickness and suffering which surrounds us. One life at most can touch only the fringe of it. Even the united force of all the Mission hospitals in China, for example, cannot do more than minister to a small fraction of the need of that vast country with its 450 millions of people. How important therefore that what we *do* do shall be done well! How necessary that the work we undertake shall be an example of what can be done and ought to be done by these nations for themselves when, in obedience to Truth and in the inspiration of Love, they shall fulfil their own destiny! The missionary opportunity of the hospital depends upon its professional efficiency. The physicians and surgeons who are needed for our Mission hospitals to-day are the men and women the homeland cannot give without feeling its loss. On the Mission-field no less than anywhere else our actions speak louder than our words, and it is folly to think that the more ground we cover the more impression we will make. We must take the long view, and let our work be a demonstration of the best Christendom has to offer. The fact that these lands are already overrun with the quack and charlatan, who find it easy to prosper on the credulity of a superstitious people, is another challenge to us to countenance no work which is slipshod and insincere. In the midst of multifarious duties, the temptation for the missionary, as for many a good man in the profession at home, is to spread himself out so

thin that he counts nowhere. It has to be remembered, of course, that proper methods of work and a well-organized system will enable a man to overtake a surprising amount of effective work, while a less methodical colleague is left far behind. The type of man who does three men's work is common on the Mission-field, but there are also some wiser and more useful men (for they last longer and go farther) who do a Trojan's work every day and inspire three other men to work for them and with them. The Mission hospital is *par excellence* the place for team work, and the student-volunteer who cannot work in a team, and *for the team,* had better seriously re-examine his call to missionary service. The medical missionary never goes to his rest feeling he has done all he would like to have done, but happy is he who knows he has done what he could. A great deal can be accomplished by training assistants to do routine laboratory work such as urinalysis, systematic examinations for parasitic ova, and examinations of blood, sputum, etc. These assistants may not at first grasp the full significance of all their findings, but they can be taught to make *accurate* observations and to reverence their conscience, and then their help is invaluable.

## Preventive Medicine

Prevention is better than cure, and to run a Mission hospital without directing a fair share of one's time to eradicate preventable suffering is to act as foolishly as the man who attempts to mop up a flood in his bathroom while the tap is still running.

The medical missionary must do something to disseminate those elementary principles of hygiene and disease-prevention which can alone deal with the

source of so much misery and sorrow. A child-welfare centre established in the out-patient department, public-health lectures illustrated with appropriate lantern slides, and the distribution of literature are examples of what ought to be done to educate public opinion. In one hospital known to me a child-welfare centre, established six or seven years ago, has extended its ramifications into hundreds of homes, and *tetanus neonatorum,* which used to be appallingly prevalent, is steadily going out of fashion.

## Special Difficulties of Hospital Administration on the Mission-field

1. *Language.*—Foremost of these is the necessity of acquiring a good working knowledge of a foreign language. It is necessary for the proper discipline of the hospital no less than for establishing contact with one's patients. The temptation is to plunge so deeply into medical work at once that language-study becomes only a side-issue. Many a medical missionary finds himself irretrievably crippled to-day because he did not take time, or *make time,* to master the language during his first term of service. In a few cases this may have been justified by special circumstances; but there is no justification for the fact that medical missionaries, as a whole, are weak when tested by their knowledge of the language of the people whom they serve. This is not as it should be, for no class of missionary has better opportunities for evangelism or greater responsibilities of administrative work.

2. *Paucity of Staff and Equipment.*—The understaffed condition of most of our Mission hospitals to-day would never be tolerated in medical work at

home. The amazing thing to those who have studied them is that Mission hospitals in spite of handicaps inside and overwhelming odds outside have been used of God to accomplish so much. At the same time, it is an undoubted fact that they could accomplish very much more if they were better equipped and more adequately staffed. The Church at home must have the conviction that if missionary work is worth doing at all, *it ought to be done well*. There remains nothing but condemnation for those who think that the medical work of the Mission hospital is in a category by itself, and as it is "for the heathen" a very much lower standard of work will suffice. The Chinese have a proverb which says, "He who would do good work must first sharpen his tools," and it will do us all good to lay its wisdom to heart.

At the same time, one can have no sympathy with those who refuse to go to the Mission-field unless they are assured of *all* the equipment for their work which is available in every well-regulated hospital at home. We have known some men who adopted this attitude, and others, quite as well qualified and just as keen on efficiency as their fellows, who threw themselves into the conflict determined to make the very best of things as they are, knowing this was the first step towards making them better. In only a favoured few of the hospitals on the Mission-field to-day is there electric light, but it would be foolish of the rest of us on that account to refuse to use oil in our lamps. Only a minority of up-country hospitals as yet possess an X-ray plant, but it would be childish of the less fortunate majority if they refused on that account to treat the scores of gunshot-wounds admitted to their wards, or to do abdominal surgery because cases could not be tested by a bismuth meal. The medical missionary

knows the value of these things and intends to keep on asking for, *and working for,* them till he gets them, but meantime he refuses to lie down and succumb to autoparalysis.

3. *Finance.*—It cannot be expected that the Mission hospital will be a self-supporting concern from the start, for, in the very nature of things, it is often planted in a district where public opinion is directly antagonistic. Later on, however, a great deal can be done towards self-support when the value of its work is recognized. The Mission hospital is to represent, not a foreign Church, but Jesus Christ, and in doing so its medical work must ultimately become an integral part of the service the indigenous Church has to render to her own land. More than this, while the majority of those who come to the hospital will be poor, many patients are quite able to pay for their treatment and the advice which accompanies it, and will value it all the more if they do so. Too much insistence on payment will undoubtedly result in excluding many of the deserving poor. Too little insistence will deprive the hospital of a legitimate source of income and will throw a burden on the home Church which she ought not to be asked to carry. The missionary must hit the happy medium. By providing accommodation suitable for private patients every Mission hospital can with tact and common sense be made a very effective combination of a public and private hospital, and as the medical work wins its way into the confidence of the people, more and more of the financial burden can be transferred from the home base to the local soil in which it has taken root.

4. *The Heathen Atmosphere.*—A case of vesical calculus had made a good recovery and was on the point of returning to his home. As he seemed grateful,

we suggested that he might like to make a contribution to the funds of the hospital. He gladly did so, but said it would have been much more if he had not already pledged a large sum to the local idol in the event of his visit to the Mission hospital ending favourably. Since then I have found that it is a common practice of patients after their initial visit to the hospital to consult their tutelary idol regarding the advice of the missionary doctor. Should the horoscope be favourable they will return for treatment, and, if all goes well, the idol, and not the hospital, may get the thank-offering !

In the early years we frequently spent much time arguing with patients regarding the necessity of their submitting to surgical treatment. The more we argued the more convinced our patients and their friends seemed to become that we were anxious to operate for our own benefit and for their destruction. I remember being called to the home of a young man whose arm was gangrenous below the elbow. The patient and his friends refused amputation in spite of all my arguments, and at the end of an hour I left, prophesying (for I noticed that the line of demarcation was well formed) that the arm would ultimately amputate itself if the patient lived long enough. This it actually did two months later, but the patient did not long survive his ordeal of suffering. As time went on I adopted other tactics, for I found that to firmly and kindly state what ought to be done, and then stop talking, was what won confidence far more quickly.

## The Objective

The purpose of the Mission hospital is something more than to attract a multitude of sick folk who shall thus be brought within range of the missionary's mes-

sage. It must do much more than this if it is to justify its existence.

Medical work ploughs the soil and prepares it for the sowing of the seed. To many, at first, the missionary is a hated "political agent." Stories circulated about him may ascribe to him still more sinister and ulterior motives, but the hospital unlocks the iron gate of prejudice and swings it wide on its creaking hinges so that no man can shut it again. The Mission hospital ministers to that appalling amount of unrelieved and *preventable* suffering which abounds in non-Christian lands, and it demonstrates that the Gospel message is an eminently practical one—that the compassionate Christ is concerned with the welfare of men's bodies as well as the salvation of their souls. It is when the Word becomes flesh and dwells among us that we understand it.

"The geographical feat is the beginning of the enterprise," wrote David Livingstone as he blazed the trail across the dark continent. Back of all the toil and danger of exploration and discovery lay the dominating purpose of the Christian missionary. And so with the medical men and women to-day who, in Christ's name, are carrying the benefits of modern medical science to foreign lands. The medical feat—the healing and prevention of disease ; the relief of human suffering—is the beginning, not the end, of their enterprise. The end-results of a Mission hospital cannot be tabulated in statistics, for they belong to the Kingdom which cometh not with observation, bringing peace and hope to human hearts.

# PIONEERING IN MEDICAL MISSION WORK

BY

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I HAVE been asked to write on "Pioneering in Medical Mission Work." By its very name I take this to mean bringing medical and surgical relief to people for whom no other provision exists. And therefore its first appeal is the tremendously strong one that in undertaking it we are doing something which is really and desperately needed. It is no case of competition with someone just round the corner, as it is in so many places in England, with its doctor to every 1,400 people. I spent many years in a district where there were only two of us, qualified men, to half a million. And that was in India, where the highly organized Government medical service has done so much to meet the need, and where year by year the number of private practitioners trained in the Government medical schools is increasing. But there is still in many places a great unoccupied sphere. For the private practitioner will be very careful to keep away from poor and unremunerative localities, and the Government qualified or semi-qualified men will be sent to places where Government servants and institutions make a first demand on their time. And they too will never entertain it as a reasonable proposition that they should

devote any spare time they may have to the care of cases that cannot or will not come personally to the dispensary or hospital.

So in backward districts the medical missionary gets a clear field. He also gets the accumulations of many years of chronic cases, both medical and surgical. I remember one morning calculating that the average period of total blindness as stated by eight cataracts just operated on was seven years. I remember removing a fibrous tumour with a long skin attachment—it could hardly be called a pedicle as the tumour was completely encapsuled. It weighed $5\frac{1}{2}$ lbs., and was attached to the skin of the flank. The man had for five years done no work, and carried it in his right hand whenever he walked.

The number of old-standing cases raises a question which I have never been able to answer very satisfactorily to myself. When a patient comes who has just a chance still of benefiting by operation, should you give him the chance by persuading him to undergo it, knowing quite well that if it is unsuccessful you will prevent a number of cases, which could almost certainly be successfully operated on, from coming to you? It might be thought that if you were very careful to explain that there was only just a chance of success you might leave the responsibility of choice to the patient. But with wholly uneducated people, and those whose natural dread of an operation is so great that they in any case require persuasion to make them undergo one, it is impossible to get rid of the responsibility of choice. I have sent away cases in spite of their entreaties that I should operate, and then been tormented with the fear that I had been lacking in faith and courage. I have operated to give the poor patient his one chance of life, and then seen all the

patients in hospital at the time decamp because he died, and known of others hindered from coming in.

The hardest thing in pioneering alone is that you have no one to consult or with whom to share responsibility. I have sometimes got out of the difficulty in an uncertain case by telling the patient to take a day or two to make up his mind. He is pretty sure to bolt in that case, and I feel rather mean. But I have had to counteract the tendency to run away if given time for reflection, in many cases where I had made up my own mind as to the desirability of operation, by acting in a way which horrifies nurses till they get used to it. A patient comes in with a malignant growth, quite operable on, and asks us for ointment to cure it. After long and weary reasoning we get him to consent to operation. We know perfectly well that if we wait till next day and have him properly cleaned and prepared he will bolt. So we do him right off.

Of course this sort of thing means that in pioneer work the regular technique of strictly aseptic surgery is impossible. We have to rely on our antiseptics for a good deal. I rather gather that the War taught the same lesson pretty widely. I once had an assistant who was unfortunate enough to get a series of septic eyes after cataract operations. I had been away from headquarters. He was fresh from strict aseptic teaching at home, and I could see he thought my liberal use of perchloride lotion very antiquated. But I hadn't had a septic eye for nearly twenty years. I continue to use 1 in 2000 perchloride lotion with a lavish hand, and the only harm I have ever seen it do is to my own fingers. But, on the other hand, the teaching of the value of boiling to secure asepsis, which has become so commonplace now that I suppose the rising generation think it is of great antiquity, came to the relief of

pioneers in a marvellous way. It is so easy to get boiling water, and you can sterilize your instruments as well in an earthen jar or cooking-pot as in the most up-to-date sterilizer.

*Making it do.*—I confess that I think one of the greatest delights in pioneer work is the makeshifts we have to use. Difficulties were made to be overcome. Plain-sailing is apt to be very monotonous. There is a keen joy in using some instrument for a purpose for which it was never intended and making a success of the job—a keener still when you can steal some household article and confer on it the honour of saving a patient. Every man who has anything of initiative in him must feel this. Manson with his trocar made by a blacksmith to fit a Spencer-Wells cannula for evacuating an abscess of the liver was a good example. The mortality from the open operation for abscess of the liver in the Calcutta General Hospital was over 95 per cent. in those days. I had had no luck myself. So I resolved to follow Manson in the next case I got. It happened to be in a European, and he was seventy-two miles from a railway station and much too weak to stand the journey. I thought I had copied Manson exactly. But alas ! my blacksmith had made the caps, into which the piece of umbrella rib for stretching the half-inch rubber tube has to be inserted, just too big to pass through the Spencer-Wells cannula. It is slightly larger at one end than the other. The patient was already under chloroform when this was discovered. The blacksmith was a mile away. My bicycle was at the door. Some good angel with these data suggested that a dust cap off the tube valve would serve as well as the cap the blacksmith had made, and would pass the cannula. It was soon in the sterilizer being boiled, and for the next

ten days remained in the centre of the patient's liver. He made a perfect recovery, and five years later, finding myself in a similar predicament without even a blacksmith at hand, I repeated the performance with equal success. How humdrum it must be to ring up a regular instrument-maker and give him directions, compared with this !

Entropium is very common in regions where ophthalmia is endemic and the most elementary ideas of its treatment unknown. Berlin's operation is an eminently satisfactory one, but if he has no Snellen's clamp or similar instrument how is the pioneer to do it ? One at least happily remembered that a certain silver jam spoon of his wife's would just fit nicely under an eye-lid, and for some months till a clamp was supplied he used it pretty often with very good success. Cases are quite commonly seen in places where there is little or no medical aid which are never seen in more civilized countries. For instance, if a child's eyelids become everted during an attack of ophthalmia and the parents are unable to replace them, a chronic complete eversion of the upper lids results. When seen after weeks or months of this condition no bandaging will keep them right when replaced. Indeed, it is almost impossible to keep a baby's eyes bandaged anyhow unless a nurse is on the spot all the time. So a pioneer medical missionary was forced to invent a plan for keeping them in place by sutures passing through the tarsal plates and the eyebrows. The operation was described in an Indian medical paper, and has saved the eyes of many children.

*Prevention better than Cure.*—There are said to be half a million hopelessly blind in India, and more in China. This is chiefly due to ignorant treatment or entire absence of treatment of ordinary ophthalmia.

The Hindu is fully impressed with the idea that if a child's eyes get stuck shut during an attack of conjunctivitis they should on no account be opened for eight days. So that the number of blind is not surprising. The pioneer has a clear field for instructing them better, and he can make use of his non-medical colleagues and the entire staff of Mission agents to preach on this subject for a month or so every year, when the hot weather brings the swarms of tiny flies which carry the infection of ophthalmia. This is only one of many ways in which a single doctor can multiply and disseminate his knowledge to the benefit of thousands.

*"Half a Loaf better than no Bread."*—When this is quoted as an argument for giving a little instruction in the treatment of ordinary ailments, it is frequently countered with the reply, "A little knowledge is a dangerous thing." I think all pioneers will go for the half-loaf. When a pioneer finds himself, as he may very easily do, in a place where a mass movement towards Christianity is taking or has taken place, he gets a great opportunity from the side of giving relief to suffering as well as very greatly strengthening the evangelistic work of his Mission. It is just in the backward places where these movements take place that there is likely to be an absence of all medical relief. It is the custom in such places to get all the evangelists and schoolmasters together for instruction for a month or two, at the time of year when the great business of land cultivation would prevent them doing their ordinary school work or getting an audience for their preaching. These assemblies for instruction give the doctor his chance. For many years I have included an hour's lecture each day on the treatment of ordinary ailments and elementary hygiene in the course of

instruction. Armed with this little knowledge and a few simple remedies, these men return to their villages and there save many eyes and lives. Moreover, they are in a much better position to know when to advise patients to come into hospital and to overcome prejudices. Or if they write a letter describing a case that the doctor is urged to visit they are better able to give him some idea whether the case is really urgent or not. And if an epidemic of cholera or influenza breaks out and the doctor has to try and cover much country, having a man in each village whom he can trust to some extent to understand and carry out instructions is a tremendous asset compared with the blank ignorance and perverse misunderstanding of the simplest directions where the little knowledge is absent. It is all very well for men at home to criticize the covering of unqualified work, but I expect most pioneers are gladly guilty of a good deal of it. Treatment by a man with a very little knowledge is a great deal better than treatment by a wizard.

*Training of Compounders and Dressers.*—No one would defend a couple of busy medical missionaries setting up a regular medical school now, as was done with very useful results in old days in China. But if the pioneer missionary wants the aid of dressers and compounders he must generally train them himself. Busy as he may be, his pupils are likely to be very superior to those trained by non-Christians in some Government hospital or those who have simply been crammed for an examination. The diagnostic skill and painstaking attention of the Civil Surgeons in India have often been nullified by the rapacity or carelessness of the compounders and dressers. So it has come to pass in some places that those trained in the Mission Hospitals have on passing their examination been

eagerly snapped up for service in Government hospitals and dispensaries. But even if the pioneer grumbles a little at losing a "boy" who has got to know all his ways and become dependable, he is still glad to have had a hand in improving other places, and to have secured a good sphere for his pupils. And so he sets to work with a succession of new ones.

*Pioneering and Specialization.*—The pioneer must be ready to tackle anything that comes along. If he is posted, as I take his title to mean, in a place where no other medical or surgical aid worth the name is available, he cannot refuse to treat any case of life and death that he might by any possibility save. If he has too few or no trained assistants, he must impress any moderately intelligent man to give the anæsthetic and perhaps one or two more to hold a limb or a tray of instruments. No Christian can doubt that he will be helped on such occasions, when he is doing the very best his circumstances allow. The results are often astonishing even to one starting with that belief. And the joy of success is proportionately great. But all this means that the pioneer must be a very general practitioner indeed. And yet it may happen that there is some class of case so common in his district that he becomes a specialist in at least one line. In India this has most often been so with regard to cataract and stone operations. In some places where the purdah system (seclusion of women) does not obtain he is likely to find in the course of years that he might claim to rank as a specialist in operative midwifery. I think if an intending pioneer were to ask me what I should advise him to specialize in while preparing, I should say midwifery. Every case he will be called to see afterwards will of necessity be a difficult one. If he has to learn then it will be a life-or-

death matter. And of course this applies also to women pioneers, though they will have the advantage of being called to normal as well as difficult cases. For both alike the circumstances in which they must operate will add greatly to their difficulties, for these cases will never be induced to come into a pioneer hospital—it must be many years established before that can be—and so they have to be treated in their homes amid surroundings which are simply horrible. But of all the satisfactions in life I know none to compare to that with which one straightens one's aching back after an hour's work on the floor when one has succeeded in saving both mother and child.

*Bazaar Medicines.*—Should we use only imported drugs, except when we can get the same article as good locally, or should we make use of what the country produces wherever it will serve fairly well? Answer—yes and no. I consider it most important in the instruction of Mission agents in the treatment of common ailments of which I have spoken above that we should teach them about locally obtainable drugs, etc. And in order to be able to do this, we should ourselves make a study of such remedies. Also in pioneer work it is very easy to run out of supplies, and very exasperating to find out too late that quite a good local substitute for what we want might have been obtained. But I do not think that we have any right to use second-best medicines when we might have the best. And in my experience the saving in cost is not great.

There is always a hope that the pioneer may discover in some local or native medicine a specific of great value. I have no doubt at all that the Madagascar leaf used by the Jesuit missionaries in the treatment of blackwater fever is such a one. I am in hopes that the jungles of Chota Nagpur may provide

a parallel. But in these days of synthetic chemistry the pioneer is less likely to discover anything startling in this way. Still, we can never forget the story of the discovery of cinchona.

Someone has asked for an expression of opinion as to the advisability of using Indians, Chinese, etc., trained in this country for pioneer work. While there may be exceptions, I venture to think that these will most feel the need of all the appliances and conveniences they have become accustomed to here, and that for pioneer work the best men are those of our own countrymen who have initiative, pluck, and a turn for unconventionality, and those trained directly by them abroad.

I have said little about the aspect of pioneer work which appeals most strongly of all to myself. In it we take the religion of Jesus Christ in its fullness, copying His own method of revealing God, to virgin soil. To send a Mission to pioneer work without a medical branch is almost indefensible. To be obliged to do so because doctors cannot be found throws a heavy responsibility on those who might go and do not.

# TROPICAL DISEASES

BY

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It is difficult to define clearly what is meant by "tropical diseases." There are few of our home diseases which are not met with in the tropics, and many so-called tropical diseases, such as malaria, beri-beri, hookworm, etc., are met with outside the tropical limit. Such a disease as leprosy, though generally thought of nowadays as a tropical disease, used to be common in England, and is still common in such a cold climate as that of Iceland. Still, there are certain diseases which it is useful to include under this somewhat loose title—viz., *diseases which are nowadays most common in hot climates*.

The study of tropical diseases had been carried on for many hundreds of years by the Indians, Egyptians, Greeks, Arabians, and others, but it was only in the last few centuries that the improvement of navigation, the discovery of new lands, and the linking up of the world which resulted from these discoveries, made it possible to render observations on tropical diseases available for common knowledge. Most of the work done in the eighteenth century and the earlier part of

the nineteenth century was by ship surgeons and the surgeons attached to European settlements in tropical countries.

It was the invention of the powerful compound microscope that made possible the discovery of the malarial parasite by Laveran, the larvæ of filaria by Manson, and the mosquito spread of malaria by Ross.

These three discoveries laid the foundations of modern tropical medicine, and it is within the last forty years, dating from Laveran's discovery, that such tremendous advance has been made.

It is during that period that four branches of science, protozoology, mycology, helminthology, and entomology, have concentrated round the diseases of hot climates, and found their richest materials for research in the countries nearest the equator.

But the scope of tropical medicine cannot be limited to diseases which are peculiar to hot countries. World-wide diseases present special features in the tropics. As in Europe, so in Asia, tuberculosis is widespread, and must be studied under the different conditions met with in the tropics. The primitive races of India afford a virgin soil for its ravages, while industrialism, as it replaces the primitive village life, will find a people even less prepared to withstand tuberculosis than it met with in Europe. During the late epidemic, while influenza slew its thousands in England, it slew its ten thousands in India.

Moreover, the study of tropical diseases and of world-wide diseases in warm countries has reacted on medical research at home. A wider outlook has been given to medical science as a whole.

In a short sketch like this it is impossible to give any details of the discoveries in tropical medicine in the last forty years; it must suffice to mention a few

of the outstanding results of research in the best-known and most widely spread diseases.

1. *Malaria.*—The discovery of the three forms of parasite; the working out of their life-cycles; the establishment of mosquito infection, and treatment by the alkaloids of cinchona.

2. *Plague.*—The discovery of the bacillus; the disease in rats and its dissemination by rat fleas; the adoption of inoculation.

3. *Yellow Fever.*—Its spread by the Stegomyia mosquito, and its subsequent control by the destruction of this mosquito.

4. *Hookworm Disease.*—The discovery of the cause of this disease and its widespread ravages and more or less obscure symptoms; the immediate relief following treatment and methods of preventing its dissemination.

5. *Cholera.*—Its cause, carriers, prevention, and treatment.

6. *Kala-Azar.*—The discovery of its causal protozoa and its successful treatment.

7. *Dysentery.*—Its causes, and the advance in our knowledge of its treatment.

These are only a few outstanding instances of recent work in tropical medicine, and no less important are the results of research in sleeping sickness, filaria, leprosy, beri-beri, bilharziosis, tropical skin diseases, and many others.

But those who realize best what has been accomplished will be the first to confess that tropical medicine is still in its infancy. Each new discovery seems to open the door to new problems more difficult than those already surmounted. More accurate diagnosis reveals the existence of new diseases never before heard of. Physical, climatic, and social features stand in

the way of advance and drive the medical reformer wellnigh to despair. Surely here is room for devotion, ability, far-sightedness, and dogged perseverance, such as was never before presented by any field of work. Each of these diseases furnishes a problem in itself which is calling out for solution.

We have heard it said that there is no room in India nowadays for the medical missionary—that Government supplies sufficient doctors for every district. Those who speak thus only show their own superficiality. Try as it may, the Government cannot supply efficient medical aid to the villages. The better doctors prefer to settle down in the towns. The average village doctor seldom keeps himself in touch with the advance of medical science, and his medical training in college has too often been a scramble to get through exams., his desire for further knowledge disappearing on the day he qualifies. The medical missionary is able to befriend these doctors, to set a higher standard before them, and to inspire them—or some of them, at least—to aim at higher proficiency.

The medical missionary, with his knowledge of the vernacular and his knowledge of and close contact with the people, has the opportunity to study disease from quite a different point of view from the Government official. His genuine concern for the good of the people soon wins their confidence. He visits their villages and has an entrance to their houses, where he is able to study the social conditions which stand at the root of most tropical diseases, and then to bring his influence to bear to combat these pernicious social conditions.

The writer once noticed that large numbers of patients were coming to dispensary and hospital from a village at a few miles' distance. All these patients

were suffering from diseases caused by drinking bad water, such as dysentery and enteric. He went out to inspect the village and look into the question of the water-supply. On reaching the village he found that the only water-supply was a large hole which had once been a tank, but the sides of which had long since fallen in. At the bottom of this hole was a small quantity of stagnant water. The head-man of the village, on being questioned, was found to be quite well aware that many of the villagers were ill and dying. He knew also that their illness was due to drinking bad water. "But what can I do, sahib?" he said. "If we had the tank dug afresh we would have plenty of pure water, but what can I do myself? I am willing to do my part, but no one will help me." On visiting the other houses of the village, we were met with the same reply—everyone was willing to do his part, but no one was willing to co-operate. Now, we may put down the cause of dysentery as *Entamœba histolytica* or other parasite, or we may go farther back and say that it is due to drinking bad water, and that is all scientifically correct; but the medical missionary in India knows that it is due in nine cases out of ten to want of the power to combine and co-operate, and it is in his double capacity as medical and missionary that he is able to get down to the roots of disease in the hearts and lives of the people.

In the hands of the practical medical missionary the gospel is a very real thing, and the need of its application to every disease, especially in the line of prevention, becomes more and more evident to him the deeper he studies tropical diseases and the possibilities of prophylaxis. There is little danger of his preaching vague generalities. In attending to the diseases of the people he is up against problems which can only be

solved by radical changes in the hearts of the people, and preaching the gospel in its breadth and height and depth becomes as much and as natural a part of his daily work as writing prescriptions and doing operations.

When a medical missionary settles down in a district he should not be prejudiced in favour of any speciality. He should take the district as he finds it, find out its chief diseases, study them thoroughly, and do his utmost by the most scientific methods to combat them. This will lead him to specialize in whatever diseases are causing most destruction and in which he can make most headway towards counteraction. Of course, while this may be laid down as a general rule, there may be exceptions depending on the particular abilities and predilections of the missionary ; but taken generally the missionary will do well to try to adhere to this principle if he wishes to do the maximum of good.

So, too, he should be guided by the needs of his district in apportioning his time between out-patients, in-patients, and house visiting. As a rule efficiency in tropical diseases can only be acquired in the first instance by studying individual cases in the ward. The ward must not necessarily be an exact reproduction of an up-to-date home hospital. The more up to date the better, provided money is available ; but in the event of limited means never let actual efficiency be sacrificed to æsthetics. Provided the wards have their floors and the lower parts of the walls of such a material that they can be thoroughly washed and the upper part of the walls and ceiling whitewashed ; provided that there is plenty of air and light and the beds can be rendered vermin-proof, we have the main essentials. No medical missionary should undertake the study or treatment of tropical

diseases without a small laboratory. It is surprising how small a laboratory can do good work, but he must make his clinical and laboratory work go together, he must drive them in harmony like a team of horses, if he would make progress.

Many medical missionaries are kept so busy by the numbers of their patients that they have no time to study the diseases they are treating. It is better to harden one's heart, to turn a deaf ear, to limit the clinic, if sacrifice of efficiency is to be the result. Often by first studying the prevailing diseases thoroughly many lives may be saved in the end which would have been sacrificed by treating far larger numbers of patients without first acquiring more thorough knowledge. I have seen thousands of patients treated year by year for malaria, while the chief cause of their illness was hookworm. Hookworm was not supposed to exist in the district, and the doctor was not sufficiently familiar with its signs, nor had he used the microscope with sufficient care. Therefore, when it is a case of quality versus quantity and hospital versus out-patients, let the quality come first—the quantity will follow.

Many medical missionaries are overworked, and their efforts are handicapped by their desire to do everything themselves. Now, tropical diseases yield a splendid field, not only for specialization and thorough study, but also for training workers.

Let the medical missionary first study the endemic diseases thoroughly himself; then let him teach what he knows to his native helpers. Let him train them as compounders, nurses, operation-room and laboratory workers. Let them learn to be expert at giving injections. If he has the right men, he will soon find that his hands are set free to do original work himself, and the time and study and pains he has spent will be

rewarded tenfold when his helpers are able to reproduce his work.

The medical missionary should make it a first principle to concentrate on training, not only because he increases the work that can be done, but also because a Medical Mission is an ideal field for character-training.

In the hospital and dispensary the doctor is brought day by day in contact with the young men under training, and whether he wish it or not, he will be influencing them all the time for good or for evil, according to what he is himself.

It has been our experience that young men who have passed through such a training are invaluable. Those who were not worthy of it tended to drop out before they had entered very long; seldom had they to be dismissed. But those who had a genuine foundation for character-building persisted, and have turned out men of sterling value. We cannot too strongly emphasize the importance of such work. It is not every medical missionary who can run a medical school, but there are few who cannot undertake some such training of young men as we have mentioned above.

With regard to the preparation of the medical missionary himself, we are of the opinion that the career of many is spoiled at the outset by their being sent straight out to some Mission station without experience of the country and its people, and with little or no experience of their diseases. There he either begins as a pioneer or steps into the shoes of his predecessor in some well-established Mission station. In either case he has the language to learn, and at the same time to begin and gather his own experiences, often through heartrending mistakes and failures.

This is a short-sighted policy. The young medical

missionary should have at least one year, better two, working under some experienced colleague. This would leave him time to acquire the language, and at the same time to draw upon the rich experience of the older missionary.

However urgent the call may be to take up work at once at his permanent station, we consider it more important that this initial experience be gained first. A course of instruction at a School of Tropical Medicine is useful, but when that school is situated in the home country, where there is little opportunity for clinical experience, it is not of itself a sufficient preparation for taking up work in a tropical country. It is easy in an enervating climate to be content with mediocrity, but there are many mediocre doctors already in tropical countries. There is plenty of room for mediocre doctors in the home countries—let them stay there. What we require in India and China and Africa is those who have acquired a thoroughly good and practical training, and who have at least moderate intelligence and determination, and who have also a love of mankind and a hatred of disease and suffering ; who will not be content simply to alleviate suffering, but who long for and will work effectively for the time when sin and suffering shall be no more.

The world has advanced since the days when modern Missions began. Eastern countries have advanced in education and in independence ; they will willingly and gratefully take our best if we offer it to them, for they need it badly ; but anything short of our best they will not accept, for they need it not—they have as good themselves.

# MEDICAL EDUCATION IN CHINA

BY

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PRIOR to the introduction of the Western learning into China, medical collegiate education was unknown. Her whole educational methods were scholastic, and her machinery was primitive in the extreme. Youths desirous to be doctors were apprenticed to successful practitioners and learnt their trade, or without apprenticeship traded on an heirloom prescription which often brought them a specialist's fame, or merely launched out as quacks, trusting to the credulity of the world and their own mother-wit. And besides these professionals, every educated man had access to the nation's medical lore, and regarded himself, with all the naïve assurance of a scholar, as learned in medicine.

It is excessively difficult for Western science to estimate the value of Chinese medical practice. There is absolutely no common ground of understanding, even in such fundamentals as the anatomy and physiology of the human body, of which their ideas are bizarre. From their ignorance of precise anatomy it follows that surgery as the West understands it is quite unknown; and their strange ideas of physiology lend a quaintness to their medical terminology and reason-

ing that is thoroughly baffling to the enquirer. On the other hand, their genuine practitioners of medicine are acute clinical observers, and, with the traditions of 2,000 years behind them, have developed an empiric skill not to be despised. Their medical literature exists in voluminous libraries. They have an immense pharmacopœia at their disposal, as yet incompletely explored by Western science; and it must be admitted that, even in direct competition with Western medicine, the old practitioner retains his hold over the confidence of the Chinese people to this day.

Yet, on the whole, the medical profession is not highly regarded in China—a fact, as we shall see, that vitally concerns medical educators to-day. No scholar of real attainments would practise medicine. At its best it was a profession of the lower levels of scholarship, and correspondingly despised. At its worst it was a quackery at the street-corners. In the absence of a guilded, much less a legally closed profession there has never been a clear demarcation between the functions of the doctor and the priest; of medicines and charms; of the genuine empiric and the unblushing charlatan. Professional ethics are rudimentary, *esprit de corps* does not exist, and in the absence of organized education, the common basis of their practice is imperfect. For all these reasons, the habit of consultations is unknown, and there has been no development of the higher specialization as it exists in the West.

It was with a background like this, and in an atmosphere of suspicion and hostility, that missionary pioneers began to introduce the rudiments of Western medicine into China. The conditions were appalling. Their hospitals were such Chinese buildings as could be rented or bought—grimy, mud-floored, black with

generations of uncleanly habits, windowed with paper, and over familiar with rats and those smaller beasts that are the universally unwelcome cohabitors with mankind! Patients, when they would come at all, must needs bring their friends to look after them and to see that they took no harm. The result was quiet but indescribable chaos. Each patient and his attendants formed a unit concerned only with its own affairs, and, like Israel of old, every man did that which was right in his own eyes.

If one adds to such a conception of chaos the inherently grimy clothing of the patients, and the fact that, except for its outside cover, their wadded bedding is unwashable for generations, the picture is as impossible as any hospital maker has conceived. It will explain why nursing was a literal impossibility, and why the tendency of the earlier pioneers was to develop their necessary assistants into "doctors" rather than "nurses." Temperatures, dressings, operating work and the out-patient clinic—these, and occasionally obstetrics, were the functions of the assistants, and, in the absence of nursing, the only way to increase their usefulness was to train them for routine medical work.

In the course of years this vague beginning became systematized. Hospitals yearly or bi-yearly accepted one, two, or three "assistants," who sometimes were paid for their work and sometimes themselves paid premiums. They signed on usually for a four-year course, and on "graduation" took with them a diploma from the hospital, certifying their course and training.

Truly we take off our hats to those pioneers who, with the fifty beds of their nurseless hospitals to care for, together with their out-patient clinics, the out-calls,

the religious work, the administration, and finance of it all, could still sit down in their evenings to teach Gray's "Anatomy" from pictures, Physiology from Halliburton, Materia Medica, Therapeutics, Pathology, Systematic Medicine, Surgery and Obstetrics from the textbooks of their own college days, translating as they went, and throwing in clinical instruction as recreation! It leaves us gasping! Make what allowances we like for the standards of the work, and yet we cannot but salute those pioneers. Of a truth "there were giants in those days."

And those "graduates who called themselves doctors"? History speaks well of them. They may have been shy in surgery, but beyond question they made excellent assistants, and in private medical practice they were not inferior to the best of the empirics who preceded them.

Such was the Western medical education known in China during the epoch that ended with the Boxer uprising in 1900, and it was widespread over the face of the land. Since then it has gradually died out, being succeeded by more complex methods. But even to this day, here and there through the land, there may be found indomitable men who carry on the work.

The Boxer upheaval was the last expiring convulsion of the old order in China, and after it the nation turned definitely towards the educational ideals of the West. By 1905 the age-long system of competitive examinations, based on the ancient Classics, had ceased to exist. The new era was born and China was launched upon a new epoch in her history.

During these same momentous years the Mission hospitals were undergoing a revolution of their own by the introduction of Western nursing superintendents

and Western nursing ideals. The demand of the new order for discipline excluded patients' friends from the wards ; its cult of cleanliness prohibited their bedding and clothes, and all that these implied, while its refinements of baths and of diet sheets made the revolution complete. Henceforward there was no inherent barrier between Mission hospitals and the attainment of the highest standards of Western hospital technique.

So, under the impulse of a great national awakening, and in the full tide of an internal revolution in hospital technique, the scene was set for a great stride forward in medical education, and thirteen of the larger medical centres began to organize themselves consciously, and even ambitiously, as schools of medicine. They were still characterized by a spirit of heroic improvisation, but differed from those of the pioneers in that their eyes were on the future, and as a first step towards building up their vision, they began consciously to seek co-operation.

The resulting staffs were two, three, four, or half a dozen men to a school—the Peking Union Medical College even attained to fifteen—an immense advance on the pioneer stage. But even yet their labours were on a heroic scale, for these men visualized no pioneer standards. The increasing complexity of the reformed hospital was itself an added load, carrying with it demands for higher standards in clinical work. Scrappy case histories, or none at all, might be tolerated in a pioneer hospital, but never in a hospital with diet sheets, and a bath ! Also, as yet there were neither English-speaking house surgeons in the wards nor technicians in the laboratories to care for detail. The whole load of the higher technique rested on the medical staff, and in such circumstances the picture of two, three, or half a dozen men dividing between them

the whole gamut of a modern medical curriculum is almost as heroic as the labours of the pioneers themselves.

The school plant was based on the intermediate hospital of the period—brick built, with glazed windows, polished wooden floors, and shapely wards, over-verandahed perhaps, but indubitably a hospital. Lawson Tait beds stood between the windows, made up with sheets, blankets and coverlet, bed-head charts on the wall above, and bedside tables by the side—a very worthy hospital in its wards; an incalculable advance on the hospitals of pioneers. But the pioneers' legacy of the empty purse was writ large in the makeshift laboratory, the improvised side-rooms, the primitive sanitation, the smoke-grimed kitchen-shed, the lean-to washhouse, the coolie-bucket water supply, the absence of central light and heating, probably of a pressure sterilizer, certainly of X-rays.

The curriculum was still mainly desk work. Staff assistants were unobtainable, scarcely less because they did not exist than because of the all-pervading financial stringency; and without them the time-demands of laboratory teaching were literally impossible—even if adequate laboratory equipment could be supplied. Anatomical dissection, too, was still forbidden.

As for the students, they came mainly from the ranks of hospital assistants—a class whose educational standards were not high; and though we visualized in them the nucleus of the medical profession of China, it must always have been a profession still deep in the shadow of ancient prejudice—a profession without either the learning, the wealth, or the social standing to make medicine in any sense a profession for a gentleman. Still, that was the outlook of this intermediate era, when the Westernization of the nation

was in its infancy. It was an immense advance on anything that had gone before, and we were content.

One of the greatest needs of medical education during this era was the systematic translation of standard Western textbooks into Chinese, and a group of men in the Medical Missionary Association banded themselves together to supply the deficiency. The task was a prodigious one. Not only were there no basal works on modern medicine in the language, but the very vocabulary of science was lacking. And—a difficulty unimaginable to our Western minds—as the terminology was created, there had to be created for it new ideograms, or characters, to express it in writing. The thing is like a nightmare of impossibility! But through every difficulty the work went on, translation, consultation, revision, until there was brought into existence a complete set of textbooks for the curriculum.

Such was the general position of affairs when, in 1913, the China Medical Missionary Association, at its biennial Conference, called for a comprehensive survey of the educational situation, and so prepared the way for the educational Commissions of the Rockefeller Foundation,* whose coming during the two following years introduced the third and final stage in the development of Medical Mission education.

The survey of the situation by these Commissions was masterly. Untrammelled by financial restrictions, untutored by the makeshifts of missionary experience, and full of that buoyant American optimism that knows nothing of impossibilities, they set themselves at one bold stride to put medical education in China fully on an

* A trust, created to administer a gift of many million dollars, made by John D. Rockefeller in America, under the sublimely simple direction, "To be used for the service of mankind."

equality with the best education of the West. As the instruments of their purpose, they planned to give assistance to selected Mission schools, and to develop the Peking Union Medical College into a school of modern medicine that should be second to none in the world.

The results were momentous. The whole medical world was swept by a wave of optimism and of insight. Men's eyes were opened to possibilities they had never seen before, and the newly appointed Committee of the China Medical Association on Education was forced to the conclusion—long advocated by its more farsighted leaders—that Mission schools must work to altogether new standards, or cease to exist ; and as a direct corollary, that they must concentrate.

For a few years this policy became a burning question throughout the length and breadth of the land. But inexorably the conviction made its way that Missions must choose between quantity and quality. Otherwise the world would swing on its relentless way, and when the Government colleges—recruiting from the high-grade men now to be available—should spring up all over the land—wealthy, efficient, irresistible—the Mission schools, once promising, but by the new standards starved, out of date, and incapable of growth, would sink into a state of insignificance and eventual eclipse.

Another question—one of the most hotly contested in the long controversies of medical education—was settled by compromise about this time : Should the teaching be in English or Chinese ?

The case for the Chinese language is patent. It is the language of the people, the native language of the students, and inevitably destined to be the final

language both of the schools and of the profession. But on the other hand, not only is there an entire absence of a modern medical literature in the Chinese language, but, in the very nature of the case, translations appear toilsomely and slowly. With the best will in the world, the production is but a trickle—one standard textbook kept moderately up to date by the Medical Missionary Association in each of the larger subjects, and a certain amount of other translation work by the Commercial Press, mainly from the Japanese. And what of the technical journals? With the literature of all the world closed to it, is not the new profession from birth destined to an arrested development in adolescence? Is it not doomed to the worst kind of parochialism, the parochialism of ignorance of all the rest of the world?

Up to a point the argument is irresistible, and English was adopted as the language of instruction by several of the newer colleges. Moreover, with its customary insight and courage, the China Medical Board of the Rockefeller Foundation conceived the great ideal of grafting the new profession into the very living body of the profession in the West, by making it possible for every graduate of teaching calibre to spend some part of his life in the actual centres of scientific activity in America, and for every actual teacher to return there periodically for stimulation and refreshment. Happily for this great ideal, English is the *lingua franca* of the Far East, and is taught in every school of real standing in the land.

Up to a point, then, English made good its claim to be the academic language of the new profession. But its economic implications are serious in a country where a command of English is fundamentally a commercial asset as it is in China; and the seriousness is intensified

manifold by the clash of economic standards. For when, in a country of low economic values, like China, there is established a commercial contact by a nation of vastly higher values, like our own, there is introduced at the point of contact a double scale of values that is profoundly unsettling. A command of English, in such circumstances, introduces a student to a scale of social amenities that is wholly artificial. It makes him ambitious, not only with the justifiable ambition of a world outlook, and a better equipment for his profession, but with the perverted ambition that springs from a taste for foreign clothes, foreign tobacco, foreign amusements, and an altogether artificial sense of money values. In a word, it wholly unfits him for the life of country towns and villages, wherein live the great bulk of the Chinese people.

Hence in the English-speaking student we create a highly specialized product, which, though invaluable in the highest walks of the profession, has a range of optimum utility much narrower than the nation's need. Incidentally he is practically unemployable by the average Mission hospital.

Against a background of these economic facts, and Mission needs, the Chinese-speaking Mission colleges have held their place in the modern educational development. Their ideals are not inferior to those of the English-speaking schools, and they make no compromise in entrance requirements or in science standards. But they deliberately sacrifice the glittering gains of English, that they may cultivate the more homely but no less useful qualities of the rank and file of a truly national profession.

Out of the furnace, then, of these two great controversies, and with the aid of the China Medical Board, the modern era of medical education has been

born. The number of schools associated with Mission interests has been reduced to six, of which three teach in English and three in Chinese. Of course, they vary immensely in their resources and in the adequacy of their equipment and staff; besides which, none of them, excepting the Peking Union Medical College, is yet at its full growth. But always the variation is one of degree rather than of kind, and the general standard set is uniformly high. In plant, fireproof construction is common. The ward units are complete, with modern sanitation and every nursing and medical convenience. Central heating, modern plumbing, and a laid-on water supply are as much to be expected as in London. Electric light is a commonplace, and X-rays indispensable. Kitchens are adequately designed for their purpose, laundries are power-driven, and a central steam-generator supplies the sterilizing room, and heats the theatre. In organization, a business manager's office has revolutionized the burden of administration, and an adequate staff of Western nursing superintendents brings the nursing up to a level of perfection undreamed of a dozen years ago. House-surgeons and technicians remove the minor drudgery of the hospitals, and departmental assistants enable the teachers to make full use of their laboratories. The increasingly adequate medical staff allows of full specialization both in clinical and in teaching work. Their quality is high by any standard. Dr. Armitage (Chairman of the British Medical Advisory Board) tells a delightful story of how Sir William Osler was convinced of the fact, and came on to the Board of the Shantung Christian University. He had taken the chair for Dr. Armitage, who afterwards, repeating previous invitations, said "Now, *won't* you come on the Board?" "It certainly was

interesting," said Osler, "but, you know, you didn't quite stick to the truth." "I tried to," said Armitage; "tell me where I slipped." "Well," replied Osler, "for instance, you said that your staff recruits men of as good quality as any college in England! You can't possibly make that good!" "I don't think I exaggerated," replied Armitage. "Come now," said Osler. "Who have *you* [S.P.G.] sent out?" "M——," replied Dr. Armitage. "What! not R—— M——?" inquired Osler interestedly. "The very man," said Armitage. "Why," said Osler emphatically, "he was the best student I ever had! If you're sending out men of that calibre, why, of course I'll come on the Board." And until the day of his death there was not a keener man in the service of Shantung Christian College than William Osler.

Such are the Mission Schools of Medicine in the China of to-day.

And now the young Profession leaps into being with all its problems upon it. Of its burdens, perhaps the heaviest is the legacy of the age-long reproach of the old profession—its questionable scholarship, and its mediocrity in men. Even the graduates of the schools of our Intermediate Era lay open to the imputation, and the leaders of the modern movement were right in laying its removal in the very forefront of their programme. "*Not merely doctors,*" they said, "*but a Profession*"; and the standard of their work from the beginning ensured their success. For, apart from its purely educational aspect (which the modern schools completely meet), the problem was an economic one, and solved itself. Men of standing and ability are in a position to choose their profession, and rightly demand from it a reasonable expectation of wealth, if only to maintain their status in

society. *But,* said the leaders of the new schools, *wealth is at the disposal of any man who can command the confidence of the well-to-do citizen of to-day. Prejudice is dead; Western science is at a premium; and if we can train really first-class men, the demand for them is assured. At the same time, the men will be forthcoming if we can offer them first-class schools.* And so it is being proved.

On the other hand it cannot be denied that, for the time being, the interests of the Mission hospitals have suffered in the process. The schools of the Intermediate Era consciously catered for the hospitals—little other demand existed during the early days of their inception. But the special qualities, by virtue of which they served the hospitals, were their readiness to accept for training any man with an efficient primary education, and their modest social atmosphere, which produced men not beyond the resources of the Missions to employ. Both qualities were superseded by the more ambitious requirements of the new profession. The very raising of the matriculation standards (and who will deny the necessity of it?) shut out practically all existing hospital workers; and the lengthened curriculum, the wholly new prospects and atmosphere of the profession, together with the ever-increasing uncertainty as to the final product of nearly a decade of collegiate emancipation, have closed to the hospitals almost entirely their erstwhile means of recruitment from their own resources.

Nevertheless, Medical Missions took their courage in both hands and launched out into the deep. It needed faith. Yet even now we begin to see their justification. We see that the old provident system was doomed. It produced the wrong type of men for the profession. Even for the Church it tended to produce

Simonists and Laodiceans; for there seems to be something fundamentally wrong with the psychology that offers a man Christian leadership at the price of accepting a lucrative profession! In the working of the schools we have broken away from the narrow cloistered life of the Intermediate Era, and go more honestly amongst the independent, self-respecting college men, preaching—not an occupation—but a spirit; seeking, not recruits, but men. The atmosphere is healthier, the outlook wider, the ideals higher, and the material altogether of a different class, for the students come from amongst the natural leaders of the nation. Numbers of them are going out into the world professed Christian gentlemen, and they all receive an impress of Christian thought and idealism that they can never wholly lose.

As for the hospitals, we preach for them the real gospel of sacrifice, seeking those great souls in whom the spark of God burns brightly—real leaders, who shall take the torch from our hands and hand it on to generations we shall never see. For the rank and file we must look, as sooner or later we were bound to look, to a sounder system of recruiting, based on newly graduated house-surgeons, as at home, together with visiting surgeons and physicians from amongst the people. So we begin to catch a distant glimpse of the day when our hospitals will be no longer conventual organizations based on far-off philanthropies overseas, but shall become amongst their own people, monuments of an indigenous Christian faith and bonds of living contact between the Christian Church and the graduates of our great Christian schools.

# THE SPIRITUAL MEANING OF MEDICAL WORK

BY

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It is certainly a stiff task to write down what I think is the true spiritual significance of the work of healing. The whole subject has been obscured by every kind of misconception and prejudice, arising out of differences both of viewpoint and of emphasis. This in its turn has raised an uncertainty in the minds of many as to whether physical healing has any spiritual value whatever, apart from the preached message which may accompany it.

It is not difficult to see how this has come about. For years we were taught by the representatives of the Christian Church that the concerns of the body were in every way to be subordinated to the calls of the spirit. What was the body, after all, but just a human clod, impeding the soul's freedom? And life, just an impatient waiting for the day when

> Body shall cumber
> Soul-flight no more.

True, the body might be disciplined so as to become the servant of the spirit; but it must be the discipline

of the *doulos*—the way of the slave, with stripes and blows. And sickness was to be regarded as the Divine method of applying such necessary and salutary castigation!

The religious artists and ecclesiastical leaders of the Middle Ages did their best to deepen this impression. They presented to us either the figure of a mystic, effeminate, ethereal Christ, or a morbid Spartan being, consumed with passion to mortify the flesh, and to train His followers in a life of severest austerity.

Little wonder if, from such a viewpoint, it was difficult to recognize any spiritual meaning in the arts of the physician. Even the great evangelical revivals which heralded the birth of the modern missionary movement were so taken up with the liberation of souls in darkness that they failed to consider whether the Incarnation of the Son of God did not also bring a message of redemption to the pain-racked bodies of men. And when at last Medical Missions came to be thought of as a possible means of spreading the Evangel of the Christ, the apologia offered on their behalf always stressed the one fact that they were invaluable as a time-saving method of securing a friendly audience for the work of preaching.

To-day, thanks to the writings of many devout scholars, we are rediscovering the Jesus of history, and with that discovery we are recapturing one great side of the true meaning of the Incarnation which has been lost to the Church ever since the days of the Reformation. We are finding ourselves in contact with One Who was not only the most Divine, but also the most human figure that ever walked this earth; One Who, as Mr. T. R. Glover has so often reminded us, has placed an entirely new value upon human personality;

One Who shared our common life, and Himself took our infirmities and bare our sicknesses; One Who by His intimate touch of sympathy and healing has redeemed sickness from the stigma of Divine punishment, and made it the very channel for the manifestation of the works of God (John ix. 1-3).

Instead of the mystic, ascetic Figure which we worshipped at a distance, we are gradually learning to approach the most virile Personality that ever captured our imagination and affection, and to see in His Message of the Kingdom a new hope for the restoration of the whole man, and for the whole of society.

One of the finest papers ever written on the subject of Medical Missions was presented to the China Centenary Conference of 1907 by that great medical missionary, Dr. Dugald Christie. Dealing with this very theme, he drew attention to the large amount of time which Christ spent in works of healing, and raised the important question as to what was the underlying purpose which governed Him. His healing, as he said, was clearly not an attempt to combat hostility; it was quite unnecessary as a means of attracting an audience; nor is there any evidence that He intended in this way either to prove His Messiahship or to produce an atmosphere of confidence. Then, "why did Christ spend so much of His short earthly life in the relief of mere physical distress which, in the nature of things, must before long be ended by death?"

There is only one answer to that question, as Dr. Christie sees it, and that is that Christ came as the supreme Revelation of that Father Who numbers the very hairs of one's head; and that such Revelation meant the redemption of the whole man, physically, mentally, and spiritually.

Such a view of the ministry of Jesus Christ brings a

new meaning into any service which has for its aim the restoration of disease-ridden bodies. So far from being an appendage of Christian effort, to be kept carefully in the background and duly apologized for, this form of ministry is something essential, something Christlike, something entirely spiritual. It is an integral part of the proclamation of the new Revelation. It is one of the Father's means of self-expression. It is the interpretation, not merely of His overflowing sympathy and love, but of His delight in healthy, vigorous, radiant life, the life of redeemed, restored manhood and womanhood.

Whatever may have been the case in more recent years, it is quite certain that the Early Church were in no doubt whatever as to their duty in this respect. "Silver and gold have I none ; but such as I have give I thee. In the name of Jesus Christ of Nazareth, rise up and walk." Such was the message of the Apostles, and such the whole conception of the early Christians in their relationship to the sick around them. And again, it was from the Christian community, as Dr. Glover says, that the *nosokomeion,* the hospital for the sick, first began to rise. And, as Lecky reminds us,[1] it was a Christian woman, Fabiola, who established the first hospital in the Western world ; a Christian Bishop, Basil of Cæsarea, who established the first leper asylum ; a Christian monk, Thalasius, who started the first asylum for the blind ; a Christian merchant, Apollonius, who founded the first free dispensary ; and a Christian Council at Nice who ordered that a public institution for the care of the poor should be established in every Christian city.

In those days it was the "natural ministrations of loving, gentle hands and prayerful hearts" which the

[1] "History of European Morals."

Church recognized as its duty towards one and all who were sick ; and coming as it did at a time when fear and despair or blind fatalism were the common accompaniments of sickness, who can estimate the spiritual power of such a service ?

In these later centuries we have come to look upon medical science and the care of the sick as something outside the functions of the Christian Church—at any rate in the so-called Christian lands. This has been largely due to the fact that the practice of mercy has overflowed the borders of the Church, and has become a permeating influence in every land where Christ's name has been preached. But in spite of this, we are learning to-day, as never before, how intimate and far-reaching is the influence of mind and spirit upon physical health, and how closely they react the one upon the other. Science unaided can never perfect her cures. It needs the message of Him Who came to give life, and that more abundantly, to restore to man the full measure of health and vigour which God intended for him. This gives a new significance to the spiritual aspect of the work of healing. The Healing Missions and Guilds of Health which have sprung up in recent years are a sign that the Church is awakening to this new sense of her duty. Even the spread of such a movement as that of Christian Science bears testimony to the fact that in spite of all its error, and the unscientific character of many of its assertions, it contains an important germ of truth in its insistence upon the interrelation of mind and body.

If it is true that even in the favoured lands of the West, with their elaborate system of hospitals and dispensaries, the Christian Church still has a spiritual mission to perform through the medium of medical science, how infinitely greater is the significance of this service

in those countries where the light of Christ's teaching and influence has not yet become widely diffused. In a land like China, in spite of all her splendid civilization and love of scholarship, the lot of the sick man is pitiable indeed if he happen to live anywhere but in the large progressive centres and treaty ports. Ignorance and superstition, combined with a strange fatalism on the one hand, or a blind rush to sacred shrines and temples on the other, produce a condition of things in which intelligent treatment and sympathetic care rarely find a place. The man who is unfortunate enough to have no relatives round him at the time when he falls sick finds but few who have any sense of responsibility towards him, or any concern for his restoration ; whilst to millions of people the very presence of disease is still associated, in some inexplicable fashion, with the malign influence of unfriendly spirits.

To such a people the work of modern medical science, when mediated by Christian men and women who seek to make their work of healing the expression as well as the vehicle of heartfelt service to God and to their brothers, possesses a threefold significance.

In the first place, it means what the Incarnation itself meant—contact. Contact with living, suffering, fearful humanity. Not sympathy only, or friendship, but such a contact as brings with it the reassuring confidence born of knowledge—the kind of confidence which, if it is mingled with real love and pity, rapidly dispels the miasma of fear and despair in which the sufferer is plunged. "Perfect love casteth out fear," wrote the Apostle, and this aspect of the work of the Christian physician or nurse is nothing less than an attempt to embody those great words in daily service. The report of every Mission Hospital bears eloquent testimony to the priceless value of this type of contact.

I think as I write of a little girl who was brought by her parents to the first hospital in which I ever worked in China. She had been run over by a heavy cart ; her jaw was broken in two places, and her face lacerated. She arrived in an old-fashioned country cart, and as I turned back the curtains which covered its windows that poor child's look of terror and shriek of fear made an impression on me that I shall never forget. For days I did not dare go near her. I operated on her without her ever seeing me. But gradually the old fears left her, and a new confidence began to dawn, and I know of few things in China which have touched me so much as to watch the gradual growth of that little child's faith and affection.

I think also of a Mohammedan mullah, brought into our wards a few years ago, almost at the point of death. He was bitterly opposed to us, and filled with apprehension ; but it was the patient, skilful attention of his dresser, one of our Chinese medical students, which won the day, and he has ever since been one of our firmest and truest friends. The old mullah and the student spent hours together studying the truths of Christianity, and one of his nephews—also formerly a Mohammedan—is now a leading man in the Christian Church in this city.

It is that kind of incident which makes one realize the immense power of human contact which is entrusted to the medical man or woman, and the spiritual significance which may underlie such intercourse.

In the second place, medical work to-day, as seen on the Mission-field, means the gift of new life. If we conceive of the ministry of Jesus as bringing a new quickening to every power a man possesses, physical as well as spiritual, the work of the missionary physician becomes at once transformed and ennobled. We are

to be the mediators of this new life, the channels by which this quickening spirit may reach every side of the nature of those we touch. This vital, throbbing energy, once seen incarnate in the Son of God, is now to reach the suffering bodies and souls of men and women through our human agency. We may no longer possess the power of miracle, but we still dispense the gift of life. And with such a tremendous commission every aspect of our work takes on a new significance and responsibility.

For years past there has been an agitation in the minds of many supporters of Medical Missions as to the relative importance of the evangelistic and the scientific aspects of the missionary physician's work. But once we appreciate this tremendous fact, that the Saviour of the Gospels is attempting to touch human lives to-day through our instrumentality, in precisely the same manner as He once touched men and women by the shores of Galilee, such a question fades into insignificance. It is life, full, radiant, abundant life, which He gives us to dispense, and in face of such a charge there can be no question of comparison or of antithesis. How can we interpret Him aright if we are unconcerned about the spiritual needs of our patients, or content ourselves with the creation of a mere atmosphere of friendship, and fail to deliver that spiritual message which alone can bring full peace and health? How, on the other hand, can we ever hope to represent His infinite care for suffering humanity unless we are offering, in His Name, the finest professional service that modern medicine has placed at our disposal? It is the stricken bodies of the "least of His brethren" which are entrusted to our care. Can one conceive of a more sacred responsibility or a higher privilege?

But there is a third significance which medical work possesses to-day, particularly in non-Christian lands, and that is as an object-lesson and a training-ground in Christian altruism. There is, perhaps, nothing more characteristic of Christianity, when seen against the background of other great religions of the world, than the fact that it provides a new dynamic of service to one's fellows, best summed up in the familiar words, "By love serve one another." Here in China, where the clan is the social unit, and where any corporate sense of responsibility has been very slow of development, it is the Mission hospital, more, perhaps, than any other institution, which has emphasized this great message of disinterested service based upon love, and the results are everywhere apparent. They are seen in the increasing number of Chinese men and women who are taking up the hitherto unpopular study of medicine; in the magnificent group of Christian girls who are braving the opposition of their friends in order to be the pioneers of the new nursing profession; in the widespread efforts always set on foot whenever dangerous epidemics appear in the country, in which efforts the Chinese themselves now take the leading part. Here we have a new spiritual significance imparted to the work of healing, a significance which is bound to produce a new valuation of the worth of human life and the responsibility for human welfare.

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